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ABSTRACT

This book articulates an integrated conceptualization of theory, assessment, application, and evaluation through the study of assessment and its role in linking theory and practice. Part 1 of the book contains six chapters which address the conceptualization of these four components, the potential for integrating them in the context of intellectual development, a refined assessment instrument to measure intellectual development, and the result of using the instrument. Chapter 1 describes the relationship of theory, assessment, application, and evaluation. Chapter 2 contains a comprehensive review of the literature regarding application of the Perry scheme in higher education. Chapter 3 describes the construction of the Measure of Epistemological Reflection (MER), a standardized production format instrument designed to measure intellectual development on the Perry scheme. Chapter 4 presents reliability and validity data for the instrument. Chapter 5 highlights 19 current applications using the MER in student services and instruction. Chapter 6 addresses potential advances in theory refinement, assessment, application, and evaluation made possible by the MER. Part 2 of the book contains eight chapters that focus on the practicality of learning to use the MER and offers a complete training package for researchers and practitioners. Chapter 7 introduces the training portion; chapter 8 contains general instructions to assist readers in learning the rating process. Chapters 9 through 14 present the rating manual for each of the six content areas measured by the MER. References are included. (NB)

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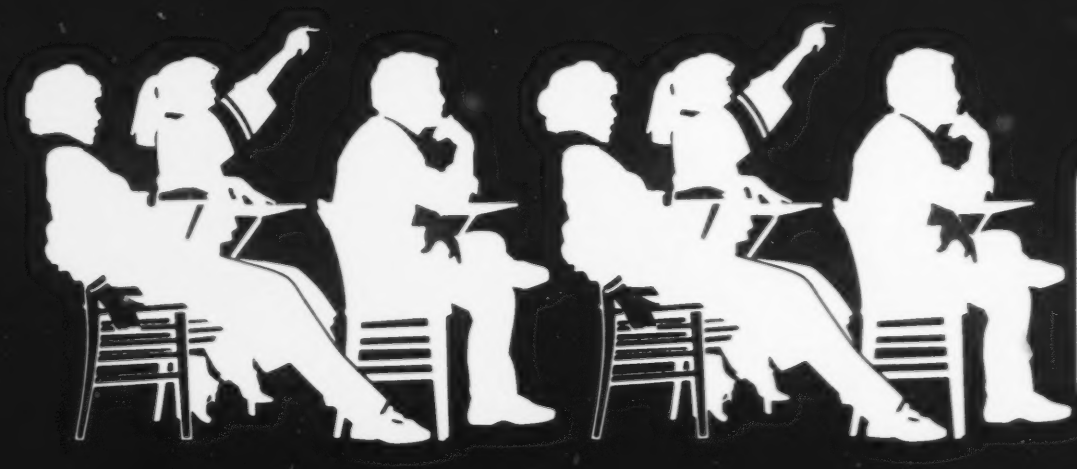
ASSESSING INTELLECTUAL DEVELOPMENT:

THE LINK BETWEEN THEORY AND PRACTICE

a comprehensive assessment program



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Assessing Intellectual Development: The Link Between Theory And Practice

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CONTENTS

Acknowledgments

Part One

Chapter 1	The Relationship of Theory, Assessment, Application, and Evaluation	1
Chapter 2	Using the Perry Scheme: A Review of Applications, Assessment Instruments, and Criteria for Measurement	11
Chapter 3	The Development of the Measure of Epistemological Reflection	21
Chapter 4	Reliability and Validity Studies of the Measure of Epistemological Reflection	31
Chapter 5	Using the Measure of Epistemological Reflection in Practice: Current Applications	51
Chapter 6	Future Directions for Theory, Assessment, Application, and Evaluation	61

Part Two

Chapter 7	A Rater Training Program for Assessing Intellectual Development	75
Chapter 8	General Instructions for Rating the Measure of Epistemological Reflection	85
Chapter 9	Domain One Rating Manual: Decision Making in an Educational Context	93
Chapter 10	Domain Two Rating Manual: Role of the Learner in the Learning Process	119
Chapter 11	Domain Three Rating Manual: Role of the Instructor in the Learning Process	143
Chapter 12	Domain Four Rating Manual: Role of Peers in the Learning Process	167
Chapter 13	Domain Five Rating Manual: Role of Evaluation in the Learning Process	189
Chapter 14	Domain Six Rating Manual: Nature of Knowledge, Truth, and Reality	213

References 235

Acknowledgments

Student development educators share a common purpose: to assist students in maximizing their intellectual and interpersonal growth. Student development theorists provide organized means of understanding student development by synthesizing observations of students. Practitioners use these foundations to create environments that help students identify their needs, engage in experiences that promote growth, and measure their progress. Assessment specialists serve as the link between theorists and practitioners by providing means of assessing student development in practice contexts. The Measure of Epistemological Reflection (MER) was developed to enhance student development educators' ability to assess intellectual development. This book is intended to promote student development educators' use of assessment to integrate theory and practice.

Numerous theorists, assessment specialists, and practitioners have contributed to the research reported in this book. The motivation to measure intellectual development emerged from Bob Rodgers' convincing arguments to ground theory in practice and his ability to demonstrate the utility of William Perry's theory. Patricia King confirmed the value of measuring intellectual development and challenged us to engage in developing an instrument despite the pitfalls of such a task. John Gibbs's assessment expertise in moral development provided the structure to make the task feasible. Hearing student voices through their responses to the MER heightened our sense of the value of assessment. Initial success in rating the MER by practitioners, particularly Cynthia Straub and John Heidke, prompted more comprehensive research on rater training. Collaborating with Judy Rogers on the intervention study renewed the commitment to make the MER accessible to practitioners. I owe a special thanks to the second author, William Porterfield, for his diligence, persistence, and humor in the instrument and manual construction process. Our intense debates over categorizing of responses undoubtedly improved the quality of the manual.

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Marcia B. Baxter Magolda
Miami University
1988

To my mother,

Marjorie A. Baxter

CHAPTER ONE

THE RELATIONSHIP OF THEORY, ASSESSMENT, APPLICATION, AND EVALUATION

Introduction

The nature of intellectual development has for many years captured the interest of researchers and educators. Researchers developed theories to explain the nature and process of intellectual development, whereas educators were interested in discovering how to foster intellectual maturity through the educational process. Comprehensive theories of intellectual development offered the foundation for fostering intellectual maturity. Educators, both faculty and student personnel professionals, have been less effective than researchers in translating theory to practice in educational environments. Recent reports provide evidence of the lack of effective translation of theory to practice. A report by the Carnegie Foundation for the Advancement of Teaching (1986) cited an "absence of vigorous intellectual exchange" in undergraduate education. The report also noted a passivity on the part of students and faculty's apparent lack of success in encouraging creativity and critique in students. Similarly, the report of the Study Group on the Conditions of Excellence in American Higher Education (Mortimer et al., 1984) emphasized the necessity for students "to extend their abilities in critical thinking and analysis, and to develop their capacities to synthesize, imagine and create" (p. 41). The Carnegie report also indicated that educators & students are uncertain of what is being learned because of the lack of comprehensive methods to measure the outcome of college education. Recommendations in these reports to increase student involvement through active teaching modes, reduce the gap between faculty and student expectations, and find ways to measure integration and application of knowledge gained clearly indicate that the advances of intellectual development theory have not been effectively applied in the academic community. Had theory been incorporated in this realm, many of the weaknesses that concern all educators would have been eliminated by engaging in the recommended activities.

By contrast, student personnel professionals have studied student development theories and exhibit greater insight into the student experience than do most academic faculty. However, despite this insight and a decade of publishing models for translating theory to practice, this group on the whole does not demonstrate active and intentional use of theory in practice. Numerous innovative applications have been reported in the literature in the last decade, but widespread use of theory to design effective educational environments has not occurred. One major reason is related to the nature of student personnel practitioners' work. The time needed to respond to student needs often results in a reactive stance that precludes long-range planning of environmental and programmatic design. When innovative uses of theory are evident, rarely are the outcomes of those interventions documented (Hanson, 1982). Two major factors account for the lack of consistent application of theory in practice and the scarcity of evaluation of applications that do exist. First, the conceptualization of theory, assessment, application, and evaluation as separate entities creates the perception that using theory in practice is far too complicated and time-consuming to be realistic. Second, the lack of accurate and practical assessment techniques (Hanson) limits the ability of practitioners or researchers to link theory and practice. This latter problem also affects researchers' ability to refine and expand theory to address new student populations. These obstacles need to be overcome in order for faculty and student personnel practitioners to work collaboratively to provide quality education. This book explores these obstacles and attempts to overcome them.

Overview of the Book

The purpose of this book is to articulate an integrated conceptualization of theory, assessment, application, and evaluation. This task is approached through the study of assessment and its role in linking theory and practice. Part 1 of the book, chapters 1-6, addresses the conceptualization of these four components, the potential for integrating these components in the context of intellectual development, a refined assessment instrument to measure intellectual development, and the result of using the instrument. Chapter 1 describes the relationship of theory, assessment, application and evaluation. A summary of theoretical advances in intellectual development demonstrates that development of theory surpasses use of theory to guide and evaluate practice. The central role of assessment as a means to link theory and practice underscores the need for further refinement of assessment methods.

Chapter 2 contains a comprehensive review of the literature regarding application of the Perry scheme in higher education. Potential applications in design and evaluation are discussed to provide insight toward future progress that improved assessment methods would enable. A history of assessment efforts in intellectual, ego, and moral development highlights current assessment issues.

Chapters 3 and 4 focus on refining assessment. Chapter 3 describes the construction of the Measure of Epistemological Reflection (MER), a standardized production format instrument designed to measure intellectual development on the Perry scheme. The combination of increased standardization and maintenance of the production format is explored to form a rationale for characteristics of the instrument and the rating manual. A discussion of initial validation of the MER provides evidence that accuracy and practicality are not mutually exclusive in the assessment of intellectual development. Chapter 4 presents additional reliability and validity data for the instrument, including cross-sectional

studies, an intervention study, and a comparison of the instrument with the interview method.

Chapters 5 and 6 demonstrate the linking of theory and practice made possible by the MER. Chapter 5 highlights 19 current applications using the MER in student services and instruction. Applications include developmental designs, investigation of areas that will enhance practice, and use of the MER as an outcomes measure. Chapter 6 addresses potential advances in theory refinement, assessment, application, and evaluation made possible by the MER. The role of the MER in these areas is elaborated and conceptual applications are offered for student services and academic settings.

Part 2 of the book, chapters 7-14, focuses on the practicality of learning to use the MER and offers a complete training package for researchers and practitioners. Chapter 7 introduces the training portion of the book by reporting successful approaches in training raters to score the MER. The training program provided in part 2 and the process for acquiring certification to use the MER are explained. Chapter 8 contains general instructions to assist the reader in learning the rating process. Chapters 9-14 present the rating manual for each of the six content areas measured by the MER. Practice instruments are provided, along with expert ratings and explanations, to assist readers who wish to learn to rate the instrument. Although these chapters are provided to enable readers to learn the rating process, the manual also enhances understanding of Perry's theory by elaborating on the original scheme.

The Relationship of Theory, Assessment, Application, and Evaluation

A conceptualization of the relationship of theory, assessment, application, and evaluation as an integrated, cyclical process is necessary to enhance professional practice. Although this conceptualization has been offered by authors of process models, most notably by Rodgers and Widick (1980) and Wells and Knefelkamp (1982), practitioners seem to continue to view the four components as separate entities. Rodgers and Widick proposed a Grounded Formal Theory approach that begins by recognizing a problem in a particular context. Theory is used to enlighten the problem by providing potential explanations. Theories selected to assist with the problem are then "grounded" with the population involved to define the problem in the real context. This is accomplished by measuring the theories selected in the population of interest. The data acquired through this grounding form the basis for goals and objectives used to design an intervention to address the problem. Evaluation of the intervention measures outcomes and provides direction for future practice. A similar process was suggested by Wells and Knefelkamp's Practice-to-Theory-to-Practice Model. This approach advocates beginning with practice to identify pragmatic concerns by addressing existing problems, enhancing current practice, or initiating new forms of practice. Use of theory to enlighten these pragmatic concerns leads to prescriptions for design, which lead back to practice in an enhanced form.

The basic message of these models supports a conceptualization of theory, assessment, application, and evaluation as intertwined parts of a coherent process. The process begins by examining the effectiveness of practice and using theory to explain weaknesses and to project desired goals and outcomes. Informal assessment techniques such as observations or perceptions are useful in this phase. Theory is also used to conceptualize an intervention to foster the desired outcomes. Formal assessment, or the systematic measurement of

student development on a particular scheme, is necessary to establish the developmental picture of students in a particular context. Once students in the context are defined theoretically, theory can be used to formulate the design that matches student needs. Formal assessment is again used to evaluate the outcomes of the intervention after implementation. Results of the evaluation determine the future direction of practice. The process described above seems similar to the process practitioners use in everyday practice. Practitioners react to problems based on knowledge they have acquired to explain the problem and direct their response. Their sense of whether their response is effective guides future response in similar situations. These basic premises are similar to those inherent in the description offered here, with the important exception that the models provide a theoretical and empirical foundation for practice to augment common sense and professional judgment.

Use of this conceptualization in student personnel services would facilitate practitioners' viewing theoretical knowledge, developmental design skills, and assessment skills as central aspects of their role. Many practitioners already understand theory, have developmental design skills, and recognize the utility of measuring outcomes of their work. The only additional effort needed to incorporate these concepts in routine practice is in learning to use assessment methods, one of the central issues this book addresses. Using formal assessment methods could reduce time currently spent solving avoidable problems, explaining the purpose of various functions to constituents, and justifying roles. The ability to judge strengths and weaknesses of current efforts would enhance practice and offer insight in how to redirect accordingly. Rationale for practice would then rest on a theoretical foundation, increasing the credibility of student personnel functions by enabling justification of their role in advancing student development. Measuring outcomes of student services would provide evidence of the impact of student personnel efforts and increase accountability.

In the academic arena this conceptualization would enhance faculty awareness of students' interpretation of their own experience and students' approach to learning. The increased understanding of students through theory would prompt faculty to examine their own practice in terms of instructional methods, curriculum, and expectations of students. Adjusting teaching styles and instructional methods to match students' intellectual development would result in the active teaching modes and involvement of students that reports critical of current educational practice recommend. Redesign of curricula in light of students' intellectual development might place certain components strategically to heighten their impact. Expectations of students in the form of challenges and supports would be more effectively communicated if they were consistent with students' levels of intellectual development. These changes would increase the probability of fostering the critical thinking crucial to the education of students. The ability to assess outcomes of the instructional process would help answer the difficult questions being asked regarding whether American higher education is providing quality education.

Benefits of incorporating theory, assessment, application, and evaluation into professional practice are clearly evident in the higher education context. Student intellectual growth, the central mission of higher education, could be intentionally and effectively fostered to yield the quality education needed for an informed and mature citizenry. Other dimensions of student growth that are intertwined with intellectual growth would be addressed to develop well-rounded students and would enhance the likelihood of intellectual achievement. Faculty, student personnel professionals, and students alike would ex-

perience greater satisfaction in the educational endeavor. Accountability on the part of the entire higher education community would clearly assist in maintaining support for higher education institutions.

Implementing this conceptualization of theory, assessment, application, and evaluation applies to all domains of students' development. Although particular educational environments focus primarily on particular domains of development, in reality students are whole persons whose intellectual, psychosocial, moral, and personality development are inseparable. This book explores the conceptualization in the context of intellectual development because of its prominence in the mission of higher education and the parallel relationship between intellectual development and other strands of development numerous theorists describe (Chickering, 1976b). The theoretical advances in intellectual development summarized next provide a foundation for integrating intellectual development theory and educational practice.

Theoretical Advances in Intellectual Development

Piaget

Numerous theoretical perspectives of intellectual development exist. The work of Jean Piaget (1926a, 1926b, 1963), who defined intellectual development from a cognitive developmental perspective, seems the most useful to educators in providing insights to foster intellectual development across the life span. Piaget's extensive study of changing patterns of thought and epistemological assumptions in children yielded several major insights relevant to the educational experience. Among these were: the qualitative difference between the thinking of children and adults; the role of activity in learning; the importance of social interaction to development; the necessity of new and different experiences to which the child could relate in sustaining interest; and the limits of children's learning capacity.

In addition to these direct contributions to understanding intellectual development, Piaget described a cognitive developmental process that underlies development in other domains such as interpersonal, moral, and ego development. Piaget's broad conceptualization stimulated developmental research by educators and scholars who advocated the development of the whole person as the aim of education. Thus Piaget sparked a "revolution" in thinking and research regarding the role of understanding students in the educational endeavor. Although Piaget's studies were detailed for the periods of infancy to adolescence, his study of adulthood was more limited. Research stimulated by the Piagetian foundation, however, expanded understanding of intellectual development through the college years.

Piaget's extensive observation of children (1926a, 1926b, 1929, 1932) formed the basis for his conceptualization of development. Through his observations he defined distinct categories or patterns of thought and epistemological assumptions evidenced by the children's behavior. These patterns represent consistent stages of development through which persons progress in a fixed sequence. Each stage consists of more complex thought patterns, resulting from a differentiation of previous thought patterns and a reintegration of those patterns into a more complex pattern. The stages are hierarchical because each stage incorporates some thinking from the previous stage but is qualitatively different.

Movement from one stage to the next is a result of the need of human beings to be in balance, or to have experiences that match their way of conceptualizing the world. When

experiences are discrepant with their thought patterns, individuals strive to resolve the discrepancy. This equilibration process consists of two reactions. The first, assimilation, represents the tendency to make meaning of experience from one's current developmental stage by organizing experiences to fit into one's current thought pattern. When the discrepancy is too difficult to explain in this fashion, the second reaction emerges. This reaction, called accommodation, involves alteration of one's thought patterns to integrate the new experience. This alteration represents developmental change. Piaget's research in both the intellectual (1926b) and moral (1932) development areas suggested that developmental stages occur in sequential order.

In addition to providing a foundation for the conceptualization of various types of development, Piaget provided a description of logical thought development (1963). His description began with the infant's sensorimotor development (birth to 2 years) and outlined the progression from reliance on reflexes to the ability to use imagery. The next stage (2 - 7 years), called preoperational thought, was characterized by the development of symbols and language utilized in conceptual thinking. Concrete operations (7 - 11 years) marked the beginning of the child's ability to apply logical thought to concrete problems. Finally, formal operations (11 - 15 years) entailed the adolescent's ability to apply logical reasoning to a variety of possible contexts and relations.

Perry's Theory of Intellectual Development

Piaget's work outlined the development of cognitive thought through the stage of formal operations, but it did not clarify what changes, if any, occurred after adolescence. William Perry (1970) extended understanding of cognitive development by studying college students. He utilized a methodology similar to Piaget's observation, collecting data through a highly unstructured interview. Careful to avoid projecting any direction onto students' responses, Perry asked students what stood out for them in their experience of the past year. The students were free to take the conversation in any direction they preferred. From these extensive longitudinal data, Perry outlined a theory of intellectual and ethical development that described students' ways of making meaning out of their college experience.

Perry describes cognitive structures as the basis for individuals' making meaning of their experiences. These structures are consistent groups of perceptions about the world and form the reasoning behind individuals' perceptions, organization, and evaluation of their experience. Development is characterized by a progression through holistic, increasingly differentiated and integrated structures. Perry identified nine distinctly different structures that exist over the course of development, each of which characterizes a stage or position in the developmental scheme. These positions are hierarchical and integrative, with each new structure representing a qualitative change in thinking. The positions follow an ordered sequence, and regression on the scheme is rare. Thus the theory follows Piaget's premises regarding development. Piaget's equilibration also serves as the stimulus for developmental change across the nine positions.

Perry groups the nine positions into three categories: dualism, relativism, and commitment. The scheme is outlined below, as presented in Taylor (1983).

Dualism. The first three positions are characterized by a dichotomous structure from which the world is viewed in absolute either-or terms. Truth is assumed to be known, and information is processed to fall neatly into one of the two categories: right or wrong, good or bad. The student perceiving the world from one of these structures views authority

figures as the holders of truth from whom she or he must learn. Thus reliance on authority rather than one's own ideas is the order of the day in learning and decision making.

> Position One. Perry (1970) describes this position as a pure, closed structure. The world as seen from this structure is free of conflict because uncertainty is not perceived. Everything is absolute to the point of inability to imagine the existence of more than one right answer to a question. Truth is accepted without question from the authorities because they are always right.
>
> Position Two. Diversity and alternate possibilities are recognized in this structure in a limited fashion. The truth still exists and is known to authorities; however, two new twists appear. Authorities introduce uncertainty as a way of helping students learn to find the truth on their own. Perry (1970) notes that this uncertainty is seen as "temporary, good for the mind, resolvable and therefore ultimately unreal" (p. 78). Learning to find one's own answers is dealt with through a focus on quantity and hard work. A second change is that some authorities do not seem to know the answers and in accord with the dualistic structure are categorized as being wrong.
>
> Position Three. The major discovery in this position is that some truth is not known at present, even to authorities. Uncertainty is more uncomfortable because it cannot be immediately resolved by appeal to authority. Confusion over evaluation of work arises because authorities cannot be expected to know the answers in all areas. In the attempt to relieve anxiety the student focuses on the right process for finding the truth and holds tightly to the notion that the authority will lead the way to finding the truth in the future.

Relativism. Positions Four, Five, and Six represent the view that knowledge is relative. The dualistic structure is discarded in favor of recognizing numerous possibilities. Uncertainty replaces absolutism. This change releases authority from its previous all-knowing position and elevates the student's ideas to an equal status. The search for absolute right answers is abandoned as the structure calls for a variety of answers dependent on the context.

> Position Four. Position Four represents the beginning of the shift from certainty to uncertainty as the way reality is perceived. Some truth remains in limited areas. For the most part, there are no answers and no criteria with which to distinguish one opinion from another. Learning focuses on thinking about thinking, or practicing the way the authorities want students to think with their guidance.
>
> Position Five. All knowledge is now viewed as relative and contextual. Opinions can be judged as better or worse depending on the existence of supporting evidence. Authorities are redefined as those who have experience and competence in groping for the truth in a given context. Introspection and detachment are possible for the first time. The ability to evaluate and subsequently choose creates the fear of narrowing one's options.
>
> Position Six. The acceptance of a truly relativistic world in which infinite contexts exist is accompanied by the realization that choosing is essential to avoid disorientation. One must affirm one's identity through establishing a context in which to invest oneself. The Position Six individual recognizes this need for commitment but has not yet acted upon it.

Commitment in Relativism. Positions Seven, Eight, and Nine do not represent restructuring as do the first five positions. They are characterized by the development of commitment. The individual takes responsibility for making choices and affirming his or her identity in numerous contexts or areas of life. Perry notes that this process addresses both the content and style of identity.

> Position Seven. Position Seven marks the point of initial commitment in some aspect of life such as career, relationships, or values. The commitment is an examined act, presupposing a genuine exploration of alternatives. Commitment is initially viewed as a settling act, restoring some order to one's life.

> Position Eight. Position Eight is accompanied by the emergence of additional choices regarding how to implement initial commitments. The major focus is on the style of implementing the commitments as well as on the issue of responsibility. Recognition of the infinite nature of choosing comes with the acceptance of relativism in its fullest sense.
>
> Position Nine. This constitutes an integration of commitments and one's life style as determined by implementation of commitments. Commitment is recognized as an ongoing activity, never to be settled in a final sense.

In addition to the main line of development, Perry suggests alternatives to growth. **Temporizing** represents a pause in growth for a year or more while the person gathers strength to continue growth. This alternative can occur at any time when students do not feel ready to proceed. **Retreat** involves returning to an earlier position, often as a defense against the implications of more complex positions. Retreat is most likely to involve a return to dualism to maintain the structure needed for emotional control. **Escape** is more likely from more complex positions and involves using detachment to avoid responsibility. Escape can occur in two forms. The first, dissociation, is characterized by a passive delegation of responsibility to fate. The second form, encapsulation, entails submersion in activity to avoid the implications of establishing one's values. The individual maintains an identity through doing rather than through choice.

Although Perry noted that the nine positions represented intellectual and ethical development, he did not specify where cognitive structural development ceased on the scheme. Heffernan (1971) and King (1978) noted that the first five positions focus on cognitive developmental phenomena in a Piagetian sense, whereas the latter four positions seem to focus on identity issues and seem to be based on the Position Five perspective. Hence, it seems that the cognitive developmental aspects of Perry's scheme are completed at Position Five.

The Reflective Judgment Model

Kitchener (1978) and King's (1977) Reflective Judgment Model was constructed to clarify the epistemological dimension of Perry's scheme. The model was theoretically derived using Perry's scheme and other theories regarding judgment. Kitchener and King developed a semistructured interview to measure reflective judgment. The interview consists of four dilemmas in the areas of science, current events, religion, and history (Kitchener & King, 1981). Respondents state and justify their views regarding the contradictions inherent in each dilemma. Standardized probe questions are used to elicit views on the nature of knowledge, the role of authorities in resolving controversy, and openness to alternative frames of reference.

The description of intellectual development emerging from the Reflective Judgment Model contains seven stages (Kitchener & King, 1981, in press). Each stage is described by the degree of certainty of knowledge, how it is gained, and how beliefs are justified. Because knowledge is certain in Stage One, it can be obtained by observation; justification is unnecessary because beliefs reflect reality. Knowledge remains certain although not always available in Stage Two, resulting in a reliance on authorities for those areas that cannot be observed. Justification remains based on observation or on authorities' word. Temporary uncertainty in some areas is added as a dimension in Stage Three. This yields reliance on one's own biases in areas of uncertainty in order to justify what one chooses to believe. This notion expands in Stage Four with the recognition that uncertainty is not

temporary. Some knowledge is unobtainable and one must rely on biases, available data, and logic to "know." Justification is an individual endeavor.

The Stage Five discovery that objective knowledge does not exist prompts gaining and justifying knowledge through a subjective interpretation based on rules of inquiry particular to a certain context. Stage Six allows for comparison of knowledge gained in different contexts through the generalization of principles of inquiry. Thus evaluation becomes possible, leading to some beliefs' being better justified than others on the basis of personal evaluation, principles of inquiry, and evaluation of experts' views. Finally, in Stage Seven facts and their interpretation are certain to the extent that they can be synthesized into coherent explanations based on existing evidence.

Summary

Collectively, Piaget, Perry, Kitchener and King's work represents substantial advances in theoretical understanding of adult intellectual development. A comparison of the Reflective Judgment Model to Perry's scheme reveals that the two are consistent. The first three stages of both theories share similar assumptions about certainty and uncertainty, although the Reflective Judgement Model emphasizes reliance on one's own biases in resolving Stage Three uncertainty. Stages Three and Four of the Reflective Judgment Model seem to provide more detail about the shift from certainty to uncertainty than does Perry's scheme. Similarly, the last three stages of the Reflective Judgment Model describe more specifically the progression from uncertainty of all knowledge to contextual knowing than do Perry's last two positions. Beyond these distinctions, the major progression of cognitive structures is parallel in both theories.

The use of unstructured and semistructured interviews in developing these theories has limited the number of student populations studied. Thus, although current theory provides a comprehensive understanding of the developmental process, questions remain regarding gender differences and the degree to which theories describe nontraditional and minority populations. Refinement of theory in these directions remains difficult without further refinement of assessment.

Assessment, Application, and Evaluation of Intellectual Development

Theoretical advances in intellectual development have surpassed advances in the components of assessment, application, and evaluation. Partially because of the high interest in using theory in practice, extensive research has occurred in the development and validation of assessment techniques. The major limitation of this research is the recurring dichotomy between accurate and practical assessment methods. Valid methods have not been sufficiently practical to facilitate application, evaluation, or theoretical refinement. Practical methods have not been sufficiently valid to use in application, evaluation, and theory refinement. A review of assessment research is contained in chapter 2. The limitations of assessment research have implications for the last two components of our conceptualization: application and evaluation.

Interest in the application of theory has led to the creation of models to guide the translation of theory to practice (Banning & Kaiser, 1974; Blocher, 1974; Wells & Knefelkamp, 1982; Morrill, Oetting, & Hurst, 1974; Rodgers & Widick, 1980). These models represent comprehensive conceptualizations of the role theory can play in practice as well as specific

directions and steps to follow to make translation possible. Understanding how to apply theoretical insight in student services and instructional contexts has been enhanced as a result. Full utilization of these models, however, remains limited because the models emphasize the important role of assessment. Assessment is suggested for examining the strengths and weaknesses of current practice to determine needed applications, for measuring theoretical constructs to determine the direction of applications, and for evaluating the outcomes of applications implemented. Some innovative applications do exist, but they are not widespread. Applications are reviewed in chapter 2.

Perhaps the evaluation component represents the area of least achievement. As was the case in previous components, models for evaluation have been articulated but are not commonly used (Lenning, 1983). The models for translating theory to practice also contain evaluation components. Again both assume the ability to measure intended outcomes, which can only be accomplished through accurate and practical assessment methods.

The Central Role of Assessment

A review of advances in the four components reveals the crucial role of assessment in integrating these components to form a firm foundation for practice. Interest in development, refinement, understanding, and use of theory is high on the part of student personnel professionals. The current state of affairs in higher education presents an opportunity to offer renewed leadership in improving the higher education community's ability to provide quality education and promote student growth. The inability of student personnel professionals as a group to incorporate the theory base in a consistent and routine fashion in student personnel practice has reduced the ability to provide such leadership in working collaboratively with the academic arena, a need the recent Carnegie report endorsed. Refinement of the assessment component is essential to enable advances in both these arenas.

The review of the application and assessment of intellectual development theory in chapter 2 clearly demonstrates the need for refinement of intellectual development assessment. The remainder of the book is devoted to describing the contribution of the MER to improving assessment and subsequently to linking theory and practice.

CHAPTER TWO

USING THE PERRY SCHEME: A REVIEW OF APPLICATIONS, ASSESSMENT INSTRUMENTS, AND CRITERIA FOR MEASUREMENT

Applications of the Perry Scheme

Researchers and practitioners quickly recognized the utility of the Perry scheme in enhancing the educational environment. These educators viewed the understanding of students' thinking as a basis upon which to create environments that would foster intellectual development. The applications of the scheme in this chapter are examples of environmental design to foster intellectual development.

Classroom Instruction

Student personnel professionals who were also academicians took the lead in conceptualizing the role of Perry's scheme in the academic realm through instruction and curriculum design. Widick (1975) and Knefelkamp (1974) were the first to report use of the scheme in developmental instruction at the college level. Their instructional methods were developed on the assumption that students at different levels of intellectual development would benefit from different approaches. Using the notion that growth is produced by a balance of challenge and support (Sanford, 1966), their developmental instruction model specified the challenges and supports to match dualistic and relativistic thinking. Because of their concrete ways of thinking and hesitancy regarding ambiguity, dualistic students were challenged with moderate diversity and direct learning experiences. Support

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Portions of this chapter are revised from "The Development of the Measure of Epistemological Reflection" by M.B. Taylor, 1983, Dissertation Abstracts International, 44, 1065A.

for dualistic students was in the form of high structure in learning activities and a personal atmosphere. The structure helped them cope with diversity and the personal atmosphere created a nonthreatening environment. Relativistic students were challenged by an emphasis on commitment in the context of extensive diversity and indirect experience because they could recognize diversity and think abstractly. Support for these students was characterized by extensive freedom to choose their own directions and personal atmosphere in the learning environment.

Employing this model in an interdisciplinary course involving literature, psychology, and human identity resulted in subject mastery, intellectual development, and student satisfaction (Knefelkamp, 1974; Widick, 1975). A study incorporating control groups taught by traditional methods (Stephenson & Hunt, 1977) reported similar results in a human identity course designed for dualistic students. To explore use of the model in other content areas, Widick and Simpson (1978) designed a dualistically oriented section of a history course that resulted in higher satisfaction, subject mastery, and intellectual development than in the control sections of the same course. Thus it seemed that the model was not content-specific. Nor was it limited to dualistic students, as demonstrated by Cornfeld and Knefelkamp's (1977) year-long sequence in graduate counselor education. This application of the developmental instruction model demonstrated changes in relativistic positions of the scheme. Use of a relativistic design in teaching student development theory (Baxter Magolda, 1987a) provided evidence of subject mastery and satisfaction as a result of the design.

Use of the scheme was expanded to numerous instructional areas. In translating of the scheme to the teaching of writing, Haisty (1984) suggested that successful writers must be able to achieve distance from their subject and audiences. Recognizing that not all entering college students were able to consider their own point of view in relation to other possible perspectives, she suggested writing exercises to help students achieve the relativistic point of view necessary for successful writing. Copes (1974) similarly argued that mathematics should be regarded as relativistic in nature and suggested translation of the Perry scheme into the teaching of mathematics. Buerk (1981) reported that mathematical activities designed according to the Perry scheme to reduce math anxiety and promote relativism were successful. Stonewater (1986) designed a science laboratory course for elementary teachers to meet the needs of dualistic students. This work, along with conceptual designs in engineering (Culver & Hackos, 1981) and science teaching (Allen, 1981), expanded use of the scheme to traditionally scientific subjects.

Whereas these studies focused on teaching methods and organization of individual courses, exploration in the broader aspects of teaching and organization also emerged. Kovacs (1977) explored the use of Perry's scheme in curriculum design and Parker (1978) addressed the notion of improving instruction through educating faculty on the Perry scheme. Nowakowski and Laughney (1978) discussed use of the scheme in training in health careers, again indicating that the Perry scheme was useful across content areas.

Career Education and Development

Others saw the relevance of insights from the Perry scheme for career education and development. The initial work in this area was reported by Stulck (1975) and Knefelkamp and Slepitza (1976). Stulck reported that behaviors related to career decision making seemed to reflect different cognitive stage levels. Knefelkamp and Slepitza (1976, 1978) then conceptualized a cognitive developmental model of career development that cor-

responded to Perry's scheme. Slepitza (1976) reported that raters' ability to use the dimensions of the career development model in stage assessment supported its validity. The model identified how students at varying levels of intellectual development would approach the career development process. This model led Touchton, Wertheimer, Cornfeld, and Harrison (1978) to design a theory-based career planning course using Widick and Simpson's developmental instruction model. The developmentally designed section resulted in increased cognitive maturity and high satisfaction.

Conceptual Translations of Theory to Practice

Although applications were initiated in the academic realm because of its direct focus on intellectual development, student personnel professionals saw the utility of the Perry scheme for many areas beyond the traditional instructional setting. Knefelkamp, Widick, and Stroad (1976) translated insights from the Perry scheme to methods for counseling women. They argued that the positions Perry described could be translated to the ways women reason about issues of importance to them. This modification formed the basis for conceptualizing the counseling process in ways to foster movement from simplistic to complex thinking. Similarly, Chickering (1976a) explored Perry's notions in advising adult learners, and Gordon (1981) conceptualized the academic advising of undecided students from this developmental perspective. Clement, Agar, Sherman, and Sobol (1977) outlined implications of the Perry scheme for peer training and Ricci, Piper, and Porterfield (1987) addressed supervision of paraprofessionals. They articulated strategies for supervising dualistic, multiplistic, and relativistic student staff members in four areas: supervisory conferences, conducting and processing staff meetings, informal contacts with staff, and the creation of staff task groups. It is important to note that most of the work in the student personnel area represents conceptual thinking as opposed to actual implementation. Often conceptualizations are not implemented in the form of applications because of the personnel and financial resources needed to assess students' developmental levels with current assessment methods.

The Perry Scheme as an Outcomes Measure

Finally, the Perry scheme has been used extensively in one institution for evaluation purposes. At Alverno College in Milwaukee, Wisconsin the Perry scheme served as an outcomes measure to ascertain the effect of the college experience on students (Mentkowski, Moeser, & Strait, 1983). A decision of the Alverno College faculty to focus their curriculum on abilities led Mentkowski and her associates to study how students changed in college and the persistence of those outcomes after college. The Perry scheme was chosen because it represented many of the desired outcomes of liberal education. A 5-year longitudinal study demonstrated an increase in complex thinking during the college experience.

Potential Applications

Intellectual Growth. Beyond the published applications and conceptualizations using the Perry scheme in practice, the scheme has potential for broader use in student services. For example, practical assessment methods could facilitate measuring students' intellectual development prior to entering college. Understanding students' intellectual development upon entrance would aid orientation staff in matching orientation to students' developmental levels. Orientation is often an attempt to acquaint students with all the possibilities

available to them in the college environment. However, this is a time when students try to assess which possibilities are right for them, and they need a concrete structure to help them function in the college environment. Student personnel professionals who work with new students beyond the initial orientation period could continue along this vein to help students develop the skills needed for success in the college environment. Academic advisors could adjust advising information and interactions related to course and major selection to match students' ways of understanding upon entrance. As students progress, the structure of these interactions could be relaxed and increasing diversity introduced. Career counseling and placement personnel could similarly adjust their approaches depending on whether students are dualistic or relativistic in their approach to career issues. Examples of applications already exist in teaching career decision making, but could be expanded in counseling and placement. Learning assistance personnel and others who provide services to build students' study and learning skills could structure these services to match intellectual development levels.

Social and Interpersonal Growth. The Perry scheme is equally applicable in the realm of student social and interpersonal life. Residential community norms could be structured according to intellectual development levels, providing more structure for dualistic student communities than for relativistic ones. Structured involvement in the formulation of community norms could enhance growth toward more complex thinking for dualistic students. Increased responsibility on the part of relativistic student communities could enhance students' development as well as the communities'. Discipline interactions and the degree to which peer review is used could be enhanced by matching response to students' ways of seeing the world. Processes for managing roommate conflicts could be structured according to students' thinking as well. The programming offered to address social concerns such as relationships, values, and identity issues would be more effective if the format matched the intended audience. Counseling could be enhanced by understanding the student's conceptualization of his or her world as the context for perceived concerns. Counselors with this insight could increase their effectiveness in helping students view the concerns and their resolution in increasingly complex ways. Advising student groups would be easier if advisors understood why students function in certain ways, which in turn would lead to structuring the advisor's role to match the capacities of student leaders. Supervision of staff from training to guidance in specific situations would be more effective if the staff member's intellectual development was the basis for supervision style. The proposed matching of aspects of the college environment to student intellectual development levels is not intended to suggest that educators should simply give students what they want. It does suggest that meeting students at their level of understanding can lead us to more effective interactions by providing the support to accomplish a specific purpose while offering a reasonable range of challenges to foster increased maturity.

The applications cited above reveal that actual implementations of conceptual translations of theory to practice are limited. Although numerous studies clearly imply that use of the Perry scheme benefits students in meaningful ways, large-scale use of the scheme in the ways suggested is hampered by lack of accurate, practical measurement techniques. The history of assessment efforts that follows serves to clarify the issues that make assessment of intellectual development a challenge.

The History of Assessment

Attempts to measure development on the Perry scheme began in two distinct directions. One direction involved interviewing subjects in an unstructured format, although somewhat more structured than what Perry used in devising the scheme. This methodology was both time-consuming and costly. Although such a methodology was essential to the initial description of the scheme of development, it was too unwieldy to be used in larger research efforts. A second direction was the development of written instrumentation. This type of measurement was perceived to be more practical than interviewing largely because it enabled group administration.

Interview Formats

Initial interview formats consisted of recognition tasks. Clinchy and Zimmerman (1975) developed a structured interview involving sets of statements representative of groups of Perry positions. The interviewer asked the student to choose one of the statements from each set and talk about the reasons for the choice. Probing techniques were employed to gain a greater understanding of the student's thinking. Thus the choice of a statement gave an indication of position, and elaboration provided additional assessment data. The interviews were recorded and analyzed to determine major and minor positions present in the responses. This method necessitated trained interviewers and trained raters.

Kurfiss (1977) developed an assessment technique involving paraphrasing of paragraphs presented to a respondent. The rationale for this assessment format was that students would accurately paraphrase paragraphs representative of their developmental level of thinking. Responses were scored as "hits" or "misses" depending on whether they matched accurate paraphrases included in a scoring manual. In addition to assessing the degree of comprehension, Kurfiss also asked respondents to rank the items that they had paraphrased to assess whether positions preferred in each topic added to the position assessment. This technique also required trained interviewers to probe paraphrased responses, and trained raters.

These two approaches highlighted a methodological distinction of importance involving recognition versus production of response. Recognition task methodologies presented the respondent with some type of material to which they were to react, choosing a response from a number of possibilities. Production task methodologies, such as that used by Perry in deriving the scheme, asked the respondent to produce a response with minimal guidance from the measuring instrument. Both types of responses were intended to be representative of a particular stage in the developmental scheme. However, research (Rest, 1973) in the area of moral development showed that students recognized and preferred developmental stages one level above those which they were able to produce. Researchers interpreted this to mean that production task methodologies were more accurate than recognition tasks in measuring the underlying cognitive structures.

Kitchener and King's (1981) exploration of the epistemological dimension of Perry's theory resulted in the development of the Reflective Judgment Model described in chapter 1. They introduced a more structured production task interview format for assessing cognitive structures. Interviewees were presented with a dilemma about questions of knowledge and asked to express their views about the dilemma. Interviewers used probing questions to clarify responses and encourage elaboration of the student's thinking. The Reflective Judgment Interview (RJI) demonstrated internal consistency ranging from .63

to .96, interrater reliability ranging from .53 to .96, and validity in the form of stage change in longitudinal research (Mines, 1982). This method represented a production task approach and produced ratable data, but also required both trained interviewers and trained raters.

Written Formats

The first approach to written instrumentation involved maintaining general stimuli to maximize projection of frame of reference while standardizing the rating process. The initial instrument of this type was the KneWi (Knefelkamp, 1974; Widick, 1975), which originally consisted of 10 sentence stems and 2 essay questions. From piloting the stems the instrument developers reduced the number to 5, which seemed to elicit the most ratable data. The stems and essays were intended to sample respondents' thinking in a number of different content areas. The flexibility of the stimuli, for example "For me to say I believe...," was consistent with Perry's emphasis on not influencing the respondent. The KneWi was accompanied by a rating manual that consisted of cues describing each Perry position. These cues were used to assist in assigning responses to Perry levels.

Widick continued refining the KneWi rating process with Rodgers (1979). Rating criteria in the manual included structural cues, attitudinal or behavioral correlates, and style of language. The rating technique consisted of first assessing structural cues to assign each response to a position on the Perry scheme. Second, the rater looked for attitudinal or behavioral correlates related to the position. Third, the rater examined the response for complexity of language, active versus passive voice, and concrete versus abstract word usage. Heidke and Omahan (1981) reported cross-sectional differences between freshmen and seniors on the KneWi using this rating process, but other validity data were not published.

Knefelkamp created a new version of the KneWi called the Measure of Intellectual Development (MID) by adopting the two original essays for use and adding a third (Moore, 1982). The MID maintained the general stimuli but addressed three specific content areas; the rating cues were increasingly standardized by the Maryland Rating Group (Moore) and Mentkowski, Moeser, and Strait (1983). The rating process involved contextually applying criteria for the positions to the responses elicited. Validity data include a .51 correlation with a measure of conceptual level (Widick, 1975) and a .45 correlation with the Defining Issues Test (Rest, 1979), which measures moral development (Meyer, 1977). Some studies using the MID reported differences by level of education (Moore) whereas others did not (Taylor, 1983). Four experimental enhancement studies indicated that the MID measured developmental changes in the predicted direction (Moore). Refinement of the rating criteria by the Alverno group (Mentkowski, Moeser, & Strait), which resulted in 300 rating criteria, yielded high interrater agreement. Thus the MID represented an increasingly standardized production task instrument, but extensive training was necessary to learn the rating process.

A second approach in written instrumentation focused on standardizing stimuli to achieve an objective scoring system. This was supported by those who desired to use assessment techniques for practice, and criticized by researchers who supported the production format. Erwin's (1983) Scale of Intellectual Development (SID), consisting of 86 objective items, used the recognition format. The SID yielded a global rating of dualism, relativism, commitment, and empathy rather than a specific Perry position rating. Initial

validation data (Erwin) were insufficient to support the SID as a valid measure of underlying structure.

A similar case occurred with the Parker Cognitive Development Inventory (PCDI), a 144-item recognition format measure of the Perry scheme (Parker, 1984). It also yielded a global measurement of dualism, relativism, and commitment. Preliminary validity data were also insufficient to address whether the recognition format accurately measured underlying structures.

Foster's (1982) Checklist, an objective, economical instrument, did yield a stage score, but comparison to an essay on the MID revealed that subjects scored one stage higher on the Checklist. This led Foster to question the feasibility of measuring complex traits with a concise, economical instrument. Foster's conclusion is similar to that of researchers in other developmental areas. Rest's (1979) Defining Issues Test (DIT) is an example of a standardized recognition task measure to assess development on Kohlberg's (1969) moral development scheme. The DIT required respondents to read a situation and check the degree of importance of a number of statements that followed. Although Rest reported favorable results regarding the validity of the test, Gibbs and Widaman (1982) pointed out that the DIT measured respondents' moral evaluation of various reasons but not their structural moral reasoning because they did not produce their own justifications. Thus the objective instruments available for the Perry scheme may be useful in certain contexts, but may not measure underlying structures.

A review of the efforts to assess intellectual development thus revealed that interview formats were too time-consuming and required too much training to be practical. Written production task instruments eliminated the need for trained interviewers, but still required extensive expertise in analyzing the data partly because of lack of standardization of stimuli or rating processes. Objective written instruments were not sufficiently developed to ensure valid measurement of underlying cognitive structures or to provide stage-specific ratings. In addition to these limitations, comparison of these assessment techniques to innovations in other areas of development revealed other shortcomings. Progress in measuring ego development (Loevinger & Wessler, 1970) and moral development (Gibbs & Widaman, 1982) provided standards of measurement against which to compare the sophistication of measures of intellectual development.

Contributions from Ego and Moral Development Assessment

Manual Construction. The work of Loevinger and Wessler (1970) emerged as one of the most comprehensive models of measurement and manual construction. Their work focused on ego development, a theory that entailed many assumptions similar to those found in intellectual development theory. They described ego development as a progression through increasingly integrated stages, each of which represent a qualitatively different frame of reference. The central function of the ego was seen as the search for meaning in experience, and movement occurred when external observations called for integration into the frame of reference. This explanation approximated Perry's description of intellectual development in which an individual assimilated new information into his or her current view of the world until the discrepancy prompted accommodation by alteration of that world view. Both theories shared the qualities of cognitive developmental theory and both focused on meaning making. Thus advances in the measurement of ego development easily applied to measurement of intellectual development.

Loevinger and Wessler strongly endorsed production tasks as the best method to measure constructs such as ego development. In fact they argued that ego development could not be measured any other way. Subsequently their instrument, the Sentence Completion Test (Loevinger & Wessler, 1970), consisted of sentence stems that maximized the respondents' freedom to project a frame of reference. Their major contribution, however, was in the area of manual construction. The basic strategy espoused by Loevinger and Wessler involved identifying qualitative differences in the successive stages of ego development. This resulted in the ability to match subject response to the sequence of model criteria and examples in a rating manual, as well as to determine the level the response most closely matched. The construction of the manual served to identify the qualitative differences across the stages. The manual described these differences for each sentence stem, increasing the degree of specificity and the probability of matching responses accurately. The evolution of the Loevinger and Wessler manual began with an initial version that contained examples of stem responses for each ego level. A second manual was developed by grouping responses with similar content in each level into categories with representative titles. Because some content was found in more than one level, a third type of manual was constructed in which all differences among the categories were rationalized on the basis of the theory.

The construction of Loevinger and Wessler's manual was guided by three basic rules. Rating every response was seen as essential to push the theorists' insights to the limits to avoid verifying the theory prematurely or losing sight of unexpected information. A second basic rule was to stay with the level of meaning presented by the respondent. Guessing what the respondent meant was acceptable to the extent that the inference was toward what the respondent would recognize as his or her meaning. Inherent in this rule was the notion that the whole response must serve as the basis for rating. The third rule emphasized use of plain English as opposed to theoretical jargon. Loevinger and Wessler emphasized that the parameters of categories were arbitrary even though placement of categories in levels was done empirically. The final underlying assumption in this measurement methodology was that an individual functions in, and could therefore be assigned to, one core level of ego functioning.

Loevinger and Wessler (1970) also presented a paradigm for empirical verification of the scoring manual. The process begins with two raters working independently to rate a sample of data using the categorized manual. Preparation of the data for rating includes removing demographic data and separating responses so that rating one response for a respondent is not affected by rating other responses for the same respondent. The raters complete one content area for all protocols and discuss differences prior to proceeding to the next content area. Following this, total protocol ratings (TPRs) are determined through a compromise process. Upon completion of rating, each response is listed in a category as assigned by the raters along with the protocol number and the TPR. This decoding report is a tool for examining the categories to determine necessary changes. This step is important in determining the best parameters and limits of categories. The manual revised through this method will eventually contain only observed categories. Theoretical categories in earlier versions will be confirmed or eliminated. Loevinger and Wessler described this ongoing revision of the manual and the theory as a bootstrap operation that served to create an increasingly refined form of assessment.

Instrument Development. Gibbs, Widaman, and Colby's (1982) Sociomoral Reflection Measure (SRM) provided a prototype for increased standardization in instrument construc-

tion. The SRM was developed to provide further standardization of the collection and evaluation of data to assess moral development described by Kohlberg (1969). Kohlberg's description of moral development shared basic characteristics of intellectual development theory because moral development was perceived to be a progression through qualitatively different, hierarchical, and increasingly complex stages. The SRM maintained the production task format and Kohlberg's premises regarding scoring (Kohlberg, 1976). The instrument format involved presenting respondents with a moral dilemma and follow-up questions to probe their thinking, focusing on the justification for reactions to the dilemma. Each dilemma, as was the case with Kohlberg's Standard Issue Scoring process (1976), addressed a particular moral issue. Within each issue, follow-up questions addressed specific moral norms, or value clusters, the respondents used to justify their thinking, and the way in which these were used in reasoning. The way respondents used norms to justify their stance on the issue was referred to as the criterion judgment and was the basis for assigning a moral stage. The systematic variation of follow-up questions prompted the respondents to think through their justifications under a variety of altered circumstances to provide complete data.

Standardizing data collection also made scoring easier. The use of different dilemmas for different moral issues eliminated the need for raters to identify which issue the response addressed. Similarly, identification of a particular norm in the follow-up questions eliminated the need for raters to identify which norms the response addressed. The rating task thus began at the point of deciding which moral development level the response matched. The rating manual was separated by moral issue and, within each issue, described norms for the particular follow-up questions and criterion judgments. This standardization assisted the rater in directly comparing each part of the response to the appropriate section of the manual to identify criterion judgments in the manual best represented by the response. Loevinger and Wessler's (1970) empirical verification process was used in the construction of the manual.

Reliability and validity data reported by Gibbs and Widaman (1982) supported this increase in standardization of stimuli and rating criteria. Test-retest and parallel forms reliability revealed correlations of .90 and .87. An interrater reliability correlation of .98 provided strong support for the increased standardization of the rating manual. Exploration of construct validity revealed correlations in the high .70s with age and education. Finally, correlation with Kohlberg's Moral Judgment Interview was .85, suggesting that the increased standardization did not sacrifice accuracy of measurement.

Criteria for Valid Assessment Instruments

Collectively Gibbs and Widaman's prototype for standardization of stimuli and rating criteria and Loevinger and Wessler's empirical verification process for manual development define the criteria for accurate assessment. Criteria for instruments and manuals suggested by this work are summarized below.

Instrument Criteria:

1. Questions address content areas relevant to the developmental scheme being measured.
2. Stimuli serve to separate content areas.

3. Stimuli systematically probe respondents' thinking through each content area to elicit adequate data for understanding respondents' meaning.
4. Stimuli directly elicit justification for respondents' thinking.

Rating Manual Criteria:

1. Rating manual is organized by content areas to provide a specific manual for each content area.
2. Rating manual specifies justification for thinking for each stage of the developmental scheme within each contentea, accompanied with examples for clarification.
3. Rating manual provides specific instructions regarding appropriate levels of inference, the unit of analysis for rating, and how to compare responses to the manual.
4. Rating manual is empirically verified, thus only observed categories are included.

In addition, these researchers provide guidelines for the rating process. Rating should be conducted by content area to avoid bias in judging responses that could occur from rating an entire protocol. Demographic data should also be removed to eliminate any potential effect on raters.

Comparison of the measures of intellectual development to these criteria reveal numerous shortcomings. None include all of the criteria mentioned above. These criteria prompted a third approach to intellectual development assessment, characterized by a production format, standardized stimuli, and standardized rating criteria. The Measure of Epistemological Reflection (MER) was developed on the basis of these criteria. Chapter 3 describes the development of the MER in detail and addresses each of the criteria for assessment as they relate to measuring intellectual development.

CHAPTER THREE

THE DEVELOPMENT OF THE MEASURE OF EPISTEMOLOGICAL REFLECTION

The measurement criteria presented in chapter 2 specify appropriate methods to obtain and interpret developmental data. The importance of these criteria for effective acquisition and valid interpretation of data emerges clearly from methodological difficulties inherent in the measurement of cognitive development. Difficulties noted by Loevinger and Wessler (1970) help illustrate the need for precision in acquisition and interpretation. They emphasized that ego, moral, and intellectual development occur simultaneously, making it difficult to separate these developmental phenomena in interpretation of data. Thus, error in matching behavioral examples to underlying development and distinguishing signs of one strand of development from correlated strands is likely to occur. The probability that respondents will exhibit behaviors representative of more than one developmental level further complicates interpreting the meaning of their behaviors. Finally, because of the nature of developmental theory, signs that appear in early stages reappear in more complex forms in later stages. Distinguishing between simple and complex forms can lead to inaccurate interpretation.

The Measure of Epistemological Reflection (MER) was designed to meet the measurement criteria noted in chapter 2 to increase specificity and precision in the assessment of intellectual development. Criteria for data acquisition were incorporated in constructing the instrument and interpretation criteria were incorporated in developing the rating manual.

Portions of this chapter are revised versions of "The Development of the Measure of Epistemological Reflection" by M.B. Taylor, 1983, Dissertation Abstracts International, 44, 1065A.

Instrument Construction

The measurement criteria prompted three major format decisions in the development of the MER. These included separation of content areas in data acquisition, production of response, and focus on justification of reasoning. Examples of the MER in chapters 9 - 14 illustrate the format characteristics discussed here. The Perry scheme and research elaborating on it (Kurfiss, 1977; Moore, 1982; Rodgers, 1977) collectively identified content areas relevant to intellectual development.

From this research six content areas emerged that demonstrated qualitative differences in underlying cognitive structures described by Perry positions. These content areas, or domains, include decision making, the role of the learner, the role of the instructor, the role of peers, evaluation, and the nature of knowledge. All six were explored in the context of the learning process in a college environment. Using Gibbs's norm framing concept, the MER was designed to separately address each of these domains. This resulted in an instrument with a section for each domain. Eliciting respondents' thinking on each separate domain was intended to collect data specific to that domain and to reduce the need to separate data for various content areas in the interpretation phase.

The production task format was chosen based on research indicating that accurate measurement of underlying cognitive structures requires production rather than recognition of a response (Loevinger & Wessler, 1970; Rest, 1973). The need to increase the structure of production task stimuli to elicit adequate data for interpretation prompted the adoption of Gibbs and Widaman's (1982) approach. A series of questions was developed for each of the six domains. The series began with a statement to focus the respondents' thinking on the domain. Follow-up probes then guided the respondents to explain their thinking by requesting details and reasons for responses. Each of the follow-up probes required production of a response and were stated objectively to avoid leading the respondent. The questions were separated on the page with response space provided for each. This format generated adequate data for interpretation because it maintained the production of response and increased the probability of respondents' answering each question.

The third, and perhaps most important, characteristic of the MER format was the focus on justification of thinking as opposed to content of thinking. King (1977) pointed out that qualitative differences in intellectual development stem from why respondents think the way they do rather than what they think. For example, two students might endorse class participation as important to their learning, but a dualistic student might define participation as asking questions whereas a relativistic student might define it as sharing ideas. Similarly, responses that initially seem opposite may stem from the same reasoning. A student who dislikes others talking in class might explain that she wants to hear the teacher while one who likes talking in class explains that he wants to ask questions to get answers from the teacher. Without these distinctions, interpretation is based on content of thinking, and in cases like this, increases inference. Gibbs and Widaman's (1982) Sociomoral Reflection Measure provided a prototype useful in designing questions to directly elicit justification of thinking. The follow-up probes for each domain of the MER specifically asked why respondents held the views they expressed in order to distinguish qualitative differences in their thinking.

A pilot study of the instrument was conducted with a volunteer sample of 32 students to identify potential problems with wording and clarity of questions and to determine

whether adequate responses would result from the questions. Results necessitated minor revisions in a few of the stimulus questions.

Rating Manual Development

The four major characteristics of the MER rating manual coincide with the four rating manual criteria noted in chapter 2. The first two characteristics relate to the format of the manual. Like the instrument, the rating manual is separated by domains. A separate section of the manual exists for each domain, specifying the progression of an individual's thinking across the first five positions of the Perry scheme. (Chapters 9 - 14 contain these sections of the manual.) The manual reduces the inference necessitated when a rater must translate a concept from one content area to another; this is accomplished by focusing on a specific domain in general position descriptions and examples of reasoning. Thus, the first level of interpretation involving separating responses from various content areas is accomplished by the instrument format and the matching manual format.

The second format characteristic of the manual is an extension of the instruments' focus on justification of thinking. The manual is based on reasoning structures, or consistent ways respondents justify their thinking. Each position in each domain contains a number of reasoning structures that serve as the basic unit for response interpretation. Interpretation, or rating, is a matter of reading an entire domain response, deciding what reasoning structure or basic justification the response represents, and then finding the reasoning structure in the manual that best matches the response. The position in which the reasoning structure is located in the manual is the one assigned for that domain. The use of reasoning structure as the basis for position assignment maintains the focus on justification as opposed to content of response.

The third characteristic of the rating manual is the degree of specificity of rating instructions. The process selected to assign responses to categories follows Loevinger and Wessler's (1970) emphasis on minimizing inferences and defining new categories. Much of the specificity of rating the MER stems from the detailed nature of the manual. Because the manual contains specific reasoning structures for each position in a domain, the rater's major task is to identify the reasoning structure in the response. In identifying the reasoning structure, inference is limited to guessing what the respondent meant, a meaning respondents would recognize as their intended meaning, rather than speculating about underlying motives. Rating then requires finding the closest match between manual reasoning structures and those identified in the response.

Examples of each reasoning structure reduce the raters' need to infer meanings of the reasoning structures provided in the manual. If no reasoning structures match those in the manual, the rater is advised to note and define the reasoning structure as a new category. The rater is further asked to make a judgment regarding the position the reasoning structure seems to represent. Either alternative results in the assignment of one position for each of the six domain responses. Chapter 8 contains detailed rating instructions.

A brief discussion of two assumptions behind the scoring algorithm is in order before continuing the description of manual characteristics. First, it is assumed that within a given domain of the instrument the response could be assigned to one position. It is reasonable to expect that a respondent might demonstrate evidence of opening toward a new position or still use previous thinking to some extent. However, it is also reasonable to assume that the respondents' modal reasoning, that which they use the majority of the

time in a particular domain, would fall into one position. This might seem initially reductionistic in light of Rest's (1979) comments on the simple stage model, but it is important to remember that a domain position rating is only one sixth of the total position assignment. Subsequently reasoning structures not used the majority of the time are not included in the domain rating, but variation in reasoning across contexts is accounted for in the total protocol rating (TPR).

The second assumption deals with how the TPR is derived. Each domain is assumed to contribute equally to the overall position assignment because no research exists to suggest that the six domains occur in any particular order or pattern. TPRs can take two forms. One is a modal TPR that includes positions other than the modal one and is used when the ratings represent at least one third of the respondent's thinking. Thus, this TPR accounts for modal position and transition. The other form is an overall TPR that averages all six domain position ratings. This TPR does not indicate modal thinking, but rather summarizes all positions represented across the six domains.

The fourth characteristic of the MER rating manual is empirical verification of the reasoning structures that it contains. Loevinger and Wessler (1970) outlined a process to refine both theory and rating processes. This process involved beginning with rating categories defined from theory, rating actual data with these categories, adding new rating categories as necessary, and using the empirical data from rating to determine necessary changes in theory or rating categories. For example, if a new category repeatedly occurred in empirical data, it should be reflected as a theoretical change. Similarly, if categories based on theory never appeared in empirical data, they should be eliminated. This process ensures that rating categories have an empirical rather than a theoretical base. The empirical verification of the MER rating manual is a central part of the initial study of the MER reported next in this chapter.

Initial Validation Study

A study (Taylor, 1983) to test the validity and reliability of this approach to assessing intellectual development was conducted following the development of the instrument and preliminary rating manual.

Sample

Participants were drawn from the student population of a large Midwestern university in 1982. The student population was balanced by gender, most undergraduate students being under age 25 and most graduate students over age 25. The mean grade point average was 2.6 for the undergraduate population and 3.5 for the graduate population (based on a 4.0 scale). Freshmen, seniors, graduate students under 30 years of age, and graduate students over 30 years of age were targeted to elicit development across the Perry scheme. Participants were randomly selected from the described population, with the exception of freshmen who were solicited from a required introductory psychology course. A total of 155 students agreed to participate, including 50 freshmen, 23 seniors, 43 graduate students under 30, and 39 graduate students over 30. Each group was balanced by gender, with the exception of seniors - 16 men and 7 women. Socioeconomic status of each group was homogeneous as measured by the Duncan scale (Featherman & Hauser, 1977).

Procedures

Participants completed the MER and the Measure of Intellectual Development (MID) that was described in chapter 2. The MID was used for validity purposes. Freshmen completed the instruments in a group setting, whereas other participants received and returned the instruments by mail. The order of the instruments was altered for half the participants to avoid any bias that might result from consistently taking one instrument last.

The two authors of the MER independently rated all MER protocols. Prior to rating, all protocols were coded and separated by domain. All responses from each domain were rated together to reduce bias that might result from rating an entire protocol at one time. The two raters worked separately to obtain two sets of ratings useful for reliability purposes. Discussion of these independent ratings resulted in compromise ratings needed for manual revision and validity tests. In addition, one expert on the Perry scheme rated the MER protocols to test the ease of learning the rating process. Two raters with minimal rating experience rated a portion of the data for the same reason. Three expert raters from the Center for Application of Developmental Instruction rated the MID protocols.

To empirically verify the rating manual, the sample was divided in half to form a derivation sample and a cross-validation sample. The derivation sample data (N = 84) were rated first using the preliminary rating manual. This manual was constructed on the basis of the Perry theory, insights from subsequent research, and pilot data. The manual had a separate section for each domain and within each domain contained a description for and examples of each Perry position. As the two authors independently rated the derivation sample data they noted reasoning structures that were not represented in the manual.

Upon completion of rating, all data were separated by position assigned and reviewed to identify categories of response based on reasoning structure. Position descriptions were also revised as needed on the basis of the derivation data. These changes were incorporated into the rating manual to form the final version. The most significant distinction between the two manuals was the inclusion of reasoning structures in the second version. The derivation data prompted identification of underlying reasoning structures to organize the example responses within each position. The final manual contained position descriptions, reasoning structures, and examples representing reasoning structures; the preliminary manual contained only descriptions and examples. Following manual revision, the cross-validation sample, consisting of the remaining 71 participants, was rated.

Reliability Results

Interrater agreement. Interrater agreement served as the most stringent test of reliability because it represented the degree to which two raters assigned the same ratings for a particular respondent. All agreement data reported here are based on ratings of the two MER authors. Additional raters' results are addressed in chapter 7, which focuses on rater training. Exact percentage agreement between the two raters was calculated for each domain and for total protocol ratings. A chi-square (Lawlis & Lu, 1972) was used to determine if the level of agreement was beyond that expected by chance, and a T value was calculated for those levels beyond chance to indicate strength of rater agreement. Agreement within one position was also calculated to determine the degree of rating discrepancy when agreement was not exact.

Percentage agreement between the two raters for the derivation sample is shown in Table 1. Agreement by domain was the most stringent test of reliability because domains

Table 1

Exact and Within-One-Position Percentage Agreement by Domain and Total Protocol Ratings Between Two Expert Raters for the Derivation Sample

	Exact	χ^2	p	T	Within One	χ^2	p	T
Domain								
One	42%	23.9	.001	.27	63%	4.2	.05	.23
Two	64%	101.3	.001	.55	92%	53.0	.001	.83
Three	64%	101.3	.001	.55	92%	53.0	.001	.83
Four	50%	46.1	.001	.38	89%	46.9	.001	.78
Five	60%	80.5	.001	.49	88%	43.9	.001	.75
Six	59%	75.7	.001	.48	87%	41.1	.001	.73
TPR	63%	95.9	.001	.54	96%	77.6	.001	1.00

constitute only one sixth of the instrument. Exact domain agreement was lowest in domains one (42%) and four (50%). The remaining domains were in the low to mid-60s range. All chi-squares indicated that these levels of agreement were beyond that expected by chance. T values were moderate in four domains, ranging from .48 to .55, and low in domains one (.27) and four (.38). Domain agreement within one position revealed that most rating discrepancies were in fact only one position apart. Only domain one (63%) was lower than 87%. Exact and within-one-position agreement on total protocols was similar, with exact agreement at 63% and within-one agreement at 96%. Chi-square analysis showed these levels of within-one-position agreement to be beyond chance.

Table 2 (see next page) shows percentage agreement for the cross-validation sample. Exact agreement in domains one and four improved by 13% and 8% respectively. Domain five agreement also rose 5%. However, the remaining three domains revealed decreases in agreement, with domain two showing the most substantial decrease - 17%. Despite this change, chi-square values indicated the agreements to be greater than chance and T values were moderate. The disagreements remained in the range of one position for the most part as evident by the within-one-position agreement figures. Exact agreement on total protocol ratings increased slightly from the derivation sample to reach 68%.

Interrater agreement for the total sample is shown in Table 3. Exact agreement was consistently in the mid-50% to early 60% range, with the exception of domain one (47%). T values were moderate in all domains except in domain one in which they were lower. Within-one-position agreement was high again, with the exception of domain one (70%). T values varied accordingly.

Interrater reliability. A second method of establishing reliability of the MER was interrater reliability, or the degree to which two raters' sets of ratings were similar. The intraclass R was viewed as the most appropriate correlation coefficient for this purpose

Table 2

Exact and Within-One-Position Percentage Agreement by Domain and Total Protocol Ratings Between Two Expert Raters for the Cross-Validation Sample

	Exact	χ^2	p	T	Within One	χ^2	p	T
Domain								
One	55%	52.9	.001	.44	79%	20.6	.001	.56
Two	47%	30.1	.001	.33	93%	47.8	.001	.85
Three	55%	52.8	.001	.44	90%	41.5	.001	.80
Four	58%	61.8	.001	.47	86%	32.8	.001	.71
Five	65%	87.4	.001	.56	90%	41.5	.001	.80
Six	56%	57.3	.001	.45	94%	51.1	.001	.88
TPR	68%	98.8	.001	.60	100%	65.6	.001	1.00

Table 3

Exact and Within-One-Position Percentage Agreement by Domain and Total Protocol Ratings Between Two Expert Raters for the Initial Validation Sample

	Exact	χ^2	p	T	Within One	χ^2	p	T
Domain								
One	47%	70.1	.001	.34	70%	19.4	.001	.37
Two	57%	129.6	.001	.46	93%	103.9	.001	.85
Three	59%	148.6	.001	.49	90%	91.3	.001	.80
Four	54%	112.0	.001	.43	88%	79.4	.001	.75
Five	62%	168.8	.001	.52	89%	85.2	.001	.80
Six	57%	129.6	.001	.46	90%	91.3	.001	.80
TPR	65%	195.9	.001	.57	100%	143.2	.001	1.00

(Tinsley & Weiss, 1975). Interrater reliability could only be calculated for total protocol ratings because domain ratings represent ordinal data. The correlation of the two raters' total protocol ratings for the derivation sample was .81 ($F(83, 84) = 9.41$, $p < .0001$). As would be expected on the basis of percentage agreement noted above, the correlation decreased slightly in the cross-validation sample to .77 ($F(70, 71) = 7.83$, $p < .0001$). The overall sample R was .80 ($F(154, 155) = 8.75$, $p < .0001$); this indicated a relatively high level of reliability.

Internal Consistency. Testing internal consistency of the MER was based on compromise ratings of the two raters. For each domain rating on which the two raters disagreed, a compromise rating was reached through discussion of the disagreement. These compromise ratings were then translated into total protocol ratings. Cronbach's alpha coefficient was computed to determine to what extent domain scores represented overall scores for all respondents combined. The alpha coefficient for the entire sample was .76, indicating a moderately high degree of internal consistency. In addition means computed for each sample group by domain revealed narrow ranges: 2.06 to 2.62 for freshmen, 3.00 to 3.43 for seniors, 2.95 to 3.93 for graduates under 30, and 3.23 to 4.08 for graduates over 30.

Validity Results

Validity of the MER was tested in two ways. First, the MER was correlated with the Measure of Intellectual Development (MID), with the assumption that correlation with the MID would establish concurrent validity for the MER. Second, analysis of variance of Perry ratings by participants' level of education was conducted to determine whether differences found in other research would appear in the MER.

Correlations between the MER and the MID for both samples were surprisingly low. Pearson product-moment correlations revealed .11 for the derivation sample and .04 for the cross-validation sample. The MID means ranged from 2.61 to 2.88, revealing very little variance across educational levels. This narrow variance, compared to the broad variance on the MER, resulted in low correlations between the two measures. The MID means did not increase with level of education, and analysis of variance of MID scores did not indicate significant differences by level of education.

Analysis of variance of MER scores revealed significant differences ($p < .0001$) by level of education. Sex and interaction effects revealed no significant differences. Scheffe's post hoc multiple comparisons computed for all combinations of level of education were significant ($p < .05$), with the exception of comparison of the graduate students under age 30 with graduate students over age 30. Means for each group increased with level of education.

Discussion

Exact interrater agreement for both the derivation and cross-validation sample was encouraging because it represented moderately high agreement for the initial test of the MER. Within-one-position agreement indicated that few disagreements were discrepant beyond one position, suggesting that fine distinctions needed improvement in the rating manual. Differences in agreement levels between the derivation and cross-validation samples indicated that increased specificity in the revised manual enhanced the rating of some domains but not others. Domains in which increased agreement occurred were

those in which the derivation sample data provided elaboration beyond the original Perry scheme. For example, in domain four, role of peers, the derivation data demonstrated that not all students who prefer peer participation define it the same way. The essence of this preference is whether students see peers as possessing valid knowledge; earlier techniques assumed that preferring peer participation meant that peers possessed valid knowledge. However, the derivation data suggested that peer participation might be defined in numerous ways, such as asking questions to get answers, that do not assume peers possess valid knowledge. Similar distinctions in reasons for preferring various evaluation methods (domain five) emerged in the derivation data. In domains where agreement decreased, most notably in role of the learner and instructor, distinctions between newly found reasoning structures were not as clear as in other domains. A review of ratings in these domains revealed a number of Position Two versus Position Three discrepancies, suggesting a need for further refinement of these sections of the manual.

Interrater reliability results substantiated that raters could use the MER rating manual with a relatively high degree of consistency. Internal consistency of the instrument was regarded as positive, particularly because a respondent could be in two or three positions across domain ratings. Overall reliability data supported the MER.

The analysis of variance and post hoc multiple comparisons clearly indicated that the MER differentiated between levels of education in the direction expected on the basis of available theory and research (King, 1977; Meyer, 1977; Moore, 1982). The MER also placed freshmen, seniors, and graduate students in positions comparable to placement in previous research (Moore). The lack of similar variability in the MID scores led to low correlations between the MER and the MID. Because the MID data did not reveal significant differences by level of education or the expected progression of scores by level, this low correlation could not be interpreted as an indication of lack of validity of the MER.

One possible source of difference between the MER and the MID ratings was the stimuli and subsequent responses elicited. The MER's specificity generally elicited a greater amount of data as well as specific reasons for a participant's thinking. Although this was possible on the MID, its more flexible structure allowed a participant greater opportunity to be general and brief and to choose the direction of the response. Differences in response could have led to different interpretations of a participant's meaning.

A second possibility for the difference in ratings was the strict focus of the MER rating process on reasoning structure. If participants had not clearly articulated their thinking on the MID, inference on the basis of available cues would have been necessary. If these issues accounted for the differences in the MER and MID scores, increased structure in instrument stimuli and the rating process may have been useful in obtaining results congruent with theoretical expectations and other research.

Conclusions

The initial reliability and validity results demonstrated that increased structure was not necessarily detrimental in accurately measuring underlying cognitive structures if accompanied by a production format. Increased standardization in instrument stimuli and rating procedures seemed to increase both the reliability and the validity of assessment. Overall, the results of the initial study provided enough support for the MER to warrant further tests of reliability and validity. The next chapter reports eight follow-up studies to further establish the reliability and validity of the MER.

CHAPTER FOUR

RELIABILITY AND VALIDITY STUDIES OF THE MEASURE OF EPISTEMOLOGICAL REFLECTION

Results from the initial validation of the Measure of Epistemological Reflection (MER) warranted further study of its reliability and validity. Eight additional studies were subsequently conducted. Six were cross-sectional studies with various student populations. These studies were conducted with other investigators who wished to explore the intellectual developmental levels of their students. One intervention study was conducted to determine whether the MER measured change over one academic year. An interview study examined the correlation between the MER and an unstructured Perry interview for validity purposes. Descriptions and results of the eight studies are reported in this chapter.

The first five cross-sectional studies were conducted at a large Midwestern state university with an enrollment of 50,000. This institution is an open admissions university with students exhibiting a wide range of college entrance scores. The student population is balanced by gender, generally under age 25, and represents state residents. The sixth cross-sectional study and the intervention and interview studies were conducted at a mid-size Midwestern state university with an enrollment of 15,000. The student population at the second institution has a balance similar in gender, age, and residency in its student population. However, students exhibit a narrower range of college entrance scores, evidenced by mean ACT scores in the mid 20s and mean SAT scores of approximately 1,000.

Note. Portions of this chapter are revised from "A New Approach to Assess Intellectual Development on the Perry Scheme" by M.B. Baxter Magolda and W.D. Porterfield, 1985, Journal of College Student Personnel, 26, 343-351 and from "Comparing Open-ended Interviews and Standardized Measures of Intellectual Development" by M.B. Baxter Magolda, 1987, Journal of College Student Personnel, 28, 443-448. Copyright by AACD. Adapted by permission. No further reproduction authorized without written permission of AACD.

Cross-Sectional Studies

Residence Hall Sample

Sample. In spring 1983 the first follow-up study was conducted with 165 residence hall staff members at a large Midwestern state university. The purpose of the study was to obtain developmental levels of staff members useful in enhancing training experiences. The sample of 165 undergraduate students included 10 freshmen, 35 sophomores, 69 juniors, and 51 seniors. Seventy-two of the students were men and 93 were women, ranging in age from 18 to 29 years. Group comparison based on demographic data revealed similarity to the entire student population.

Procedures. All residence hall staff members were required to participate in the study. They received the MER by mail, completed it at their convenience, and returned it to a central location within 2 weeks. The instruments were independently rated by the two authors of the MER using the rating manual described in chapter 3. Following completion of independent rating, levels of agreement were ascertained and disagreements on domain ratings discussed to reach compromise ratings. These compromise ratings were provided to training personnel for their use and also served as the basis for validity tests.

Table 4

Exact and Within-One-Position Percentage Agreement by Domain and Total Protocol Rating Between Two Raters for the Residence Hall Sample

	Exact	χ^2	T	Within One	χ^2	T
Domain						
One	54%	121.8	.43	84%	69.0	.66
Two	54%	117.5	.42	90%	97.1	.79
Three	68%	234.6	.59	96%	130.2	.91
Four	61%	178.8	.52	94%	120.1	.88
Five	66%	217.1	.57	92%	110.0	.84
Six	62%	184.0	.53	89%	91.3	.76
TPR	72%	278.2	.65	99%	148.9	.99

For all chi-squares df = 1, N = 165, $p < .001$.

Results. Reliability was examined by interrater agreement, interrater reliability, and internal consistency. Exact and within-one-position percentage agreement between the two raters is shown in Table 4, along with chi-square (Lawlis & Lu, 1972) tests of significance and T values as appropriate to indicate strength of agreement. Exact agreement on domain ratings ranged from 68% in domain three to 54% in domains one and two. Most disagreements were within one Perry position as evidenced by the range of 96% to 84% within-one-position agreement. All disagreements were significantly different than chance expectation ($p < .0001$). Strength of exact agreement was moderate with T values ranging from .42 to .59. Interrater agreement on TPRs was slightly higher than on domain ratings at 72% for exact agreement and 99% for within one position.

Interrater reliability was determined through use of the intraclass correlation (R) because it allowed for extraction of the between-rater variance term from the error term (Tinsley & Weiss, 1975). The total protocol ratings of the two raters were correlated, yielding $R = .62$ ($F(164, 165) = 4.25$, $p < .0001$). Internal consistency was measured with Cronbach's alpha, resulting in a coefficient of .63.

This sample contributed minimally to further exploration of validity because of the restricted range of educational levels, particularly because the sample included only 10 freshmen. Analysis of variance by educational levels revealed no significant differences; all four means were close, ranging from 2.6 to 2.9.

Discussion. Exact agreement on domains and total protocols was slightly higher than in the original study reported in chapter 3. Apparently the discussion of ratings in the compromise phase of the original study served to clarify distinctions in reasoning structures, particularly between Positions Two and Three. Overall interrater reliability, however, was slightly lower in this sample perhaps because of a more restricted range of educational levels and resulting ratings. Thus, the residence hall study provided further evidence of the reliability of the MER and also indicated room for clarification in the more complex positions of the scheme.

Social Work Sample

Sample. This sample included 121 students enrolled in the College of Social Work at a large Midwestern state university in spring 1983. Faculty in the college sought to increase the effectiveness of the overall program through use of information on students' intellectual developmental levels. All students were asked to complete the MER through a letter from the dean of the college, but participation was voluntary. Of the 121 participants, 30 were juniors, 22 were seniors, 64 were master's degree students, and 5 were doctoral candidates. The majority of students were women (100), and ages ranged from 20 to 57. Analysis of demographic characteristics revealed no significant differences from the general population of social work students.

Procedures. Participants completed the MER in the central office of the College of Social Work. Space was provided for students to complete the instrument at their leisure on a walk-in basis. Instruments were independently rated by the authors of the MER, and compromise ratings were generated after determination of levels of interrater agreement. As in the previous study, these compromise ratings were provided to the social work faculty for their use and were used by the authors for validity purposes.

Results. Exact and within-one-position percentage agreement between raters for domains and total protocols are shown in Table 5. The chi-square (Lawlis & Lu, 1972) test of significance and T values are also noted in Table 5.

Table 5

Exact and Within-One-Position Percentage Agreement by Domain and Total Protocol Rating Between Two Raters for the Social Work Sample

	Exact	χ^2	T	Within One	χ^2	T
Domain						
One	50%	65.1	.37	80%	39.0	.59
Two	60%	121.5	.50	93%	79.8	.85
Three	60%	116.6	.49	92%	76.6	.83
Four	50%	68.8	.38	89%	67.4	.78
Five	65%	147.8	.56	87%	58.7	.73
Six	53%	80.6	.41	89%	67.4	.78
TPR	64%	142.5	.55	100%	112.6	1.00

For all chi-squares df = 1, N = 121, $p < .001$.

Exact agreement was lower on this sample than on the residence hall sample, with domain five having the highest agreement (65%) and domains one and four the lowest with 50%. Despite the decrease, all agreements were statistically significant ($p < .001$). Strength of exact agreement was also lower, as evidenced by T values from .37 to .56. Agreement within one position ranged from 80% to 93%, with all domains close in agreement except domain one. Again all were significant ($p < .001$), and T values generally in the mid .70 to mid .80 range indicated stronger agreement. Exact agreement on TPRs was 64%, with 100% within-one-position agreement.

Interrater reliability for this sample was R = .70 (F = (120, 121)5.59, $p < .0001$). Cronbach's alpha coefficient was .60.

An analysis of variance by educational levels revealed significant differences ($p < .0001$). Student-Newman-Keuls post hoc multiple comparisons indicated significant differences ($p < .05$) between doctoral candidates, second-year master's students, and the remaining participants, who were juniors, seniors, and first-year master's students. Means for the groups from juniors to doctoral candidates were 3.0, 3.4, 3.3, 3.7, and 4.5.

Discussion. The slightly lower interrater agreement in this sample suggested that the distinctions between Positions Two and Three were not an issue because the sample contained junior through graduate student educational levels. Exact agreement was still acceptable, and within-one-position agreement made it clear that fine distinctions remained

the major issue. Interrater reliability indicated that total protocol scores were reliable despite domain disagreements. The differences emerging in the analysis of variance, as well as the means by educational level, contributed additional evidence of the validity of the MER.

Teacher Education Sample One

Sample. This group included 180 students enrolled in a teacher education program at a large Midwestern state university. In fall 1983 they completed the MER in class sessions as part of a dissertation study on teacher education (Stuck, 1984). The purpose of the study was to explore the cognitive developmental levels of teacher candidates and teacher educators in relation to satisfaction with learning activities. Respondents were volunteers from an introduction to teaching course that served as a core requirement for all undergraduate teacher preparation programs. The student group included both the teacher educators involved in the instruction of the course (N = 9) and students enrolled in the course who agreed to participate. The group consisted of 1 freshman, 21 sophomores, 113 juniors, 31 seniors, 5 master's degree students, and one person who held a doctorate. There were 132 women and 48 men, ranging in age from 19 to 67.

Procedures. Teacher educators completed the instrument independently and teacher candidates completed it in class. Instruments were rated independently by the MER authors. Compromise ratings again were provided to the investigator and were used for validity tests for the MER.

Results. Table 6 contains exact and within-one-position percentage interrater agreement and significance by domain and total protocol ratings. Exact agreement increased in

Table 6

Exact and Within-One-Position Percentage Agreement by Domain and Total Protocol Rating Between Two Raters for the Teacher Education Sample One

	Exact	χ^2	T	Within One	χ^2	T
Domain						
One	48%	85.8	.35	78%	50.1	.55
Two	75%	338.3	.69	92%	113.5	.83
Three	68%	261.0	.60	93%	119.9	.85
Four	66%	237.5	.58	89%	98.2	.77
Five	60%	178.5	.50	88%	95.3	.68
Six	66%	231.8	.57	89%	101.2	.78
TPR	74%	331.4	.68	99%	158.6	.98

For all chi-squares df = 1, N = 180, $p < .001$.

this sample, with a range of 75% (domain two) to 48% (domain one), the latter being the only domain below 60%. The lowest within-one-position agreement was again in domain one (78%) whereas the other domains ranged from 88% to 93%. TPR exact agreement was 74% and within-one-position agreement, 99%. All were significant ($p < .001$). T values showed increased strength of agreement in all but one domain.

Similarly interrater reliability remained at the same level with $R = .71$ ($F(179, 180) = 5.89$, $p < .0001$). The internal consistency coefficient was .65.

Analysis of variance again revealed significant differences by educational level ($p < .0001$). Student-Newman-Keuls post hoc comparisons showed significant differences ($p < .05$) between doctoral candidates, first-year master's degree students, and the remaining participants - seniors, juniors, sophomores, and one freshman. Means were in ascending order according to educational level: 1.8 for the freshmen; 2.47, 2.49, and 2.6 for the sophomores, juniors, and seniors respectively; 2.9 for first year master's students; and 3.8 for doctoral candidates.

Discussion. Interrater agreement again improved in this sample because of a manual revision prior to rating these data. Following the social work sample, which helped to clarify distinctions across the more complex levels of the scheme, the manual was revised to distinguish between similar reasoning structures in Positions Three and Four. These changes probably accounted for the increase in interrater agreement in the current sample. Interrater reliability and internal consistency remained similar to those in the previous sample.

Validity data from this study again revealed the expected differences by level of education but must be regarded with caution because of the small number of students in the graduate student categories. However, the means of students in this sample, particularly those at higher educational levels, were somewhat lower than those indicated in previous research (Moore, 1982; Rodgers, 1977), in which seniors were generally between Position Three and Four and graduate students generally in Position Four or Five. The small number of graduate students probably accounts for the small discrepancy in that group. Additional data reported by Stuck (1984) suggested that the MER ratings were accurate.

Teacher Education Sample Two

Sample. The College of Education in which the Stuck (1984) research was conducted administered the MER again to the teaching assistants enrolled in an intensive preparation program in fall 1984. The purpose of this study was to describe the cognitive development of teaching assistants for use in teacher training. The sample of 106 included 40 first-year master's students, 16 second-year master's students, and 50 doctoral candidates. The sample was balanced by gender, with 44 men and 59 women. Ages ranged from 21 to 51.

Procedures. Respondents completed the MER independently at the beginning of the fall term. Instruments were rated independently by the MER authors. Compromise ratings again were provided to the investigator and were used for validity tests for the MER.

Results. Table 7 contains exact and within-one-position percentage agreement between raters by domains and total protocol ratings, tests of significance, and T values. Domain

Table 7

Exact and Within-One-Position Percentage Agreement by Domain and Total Protocol Ratings Between Two Raters for Teacher Education Sample Two

	Exact	χ^2	T	Within One	χ^2	T
Domain						
One	31%	7.8*	.14	47%	1.0**	NA
Two	51%	62.3	.39	80%	33.8	.59
Three	61%	111.6	.52	89%	59.9	.76
Four	46%	44.5	.33	83%	40.9	.65
Five	49%	52.8	.36	78%	29.4	.55
Six	48%	51.3	.35	72%	16.5	.41
TPR	46%	43.5	.33	89%	58.4	.78

*For chi-square df = 1, N = 106, $p < .01$
**Chi-square not significant.
For all remaining chi-squares df = 1, N = 106, $p < .001$

three again exhibited the highest exact agreement (61%), whereas most domains were near 50%. Similarly domain one remained the lowest with 31%. Despite the low exact agreement on domain one, it remained statistically significant ($p < .01$) but with a low T value. All other domains were significant at $p < .001$ but still accompanied by lower strength of agreement than in previous samples. Within-one-position agreement ranged from 47% (domain one) to 89% (domain three), all but domain one significant at $p < .001$. TPR exact agreement was 46% ($p < .001$) and within-one-position agreement was 89% ($p < .001$).

The intraclass correlation for this sample was .65 ($F(105, 106) = 4.75$, $p < .0001$). Cronbach's alpha revealed .68 for internal consistency.

Validity data were difficult to explore with this sample again because of the restricted range of educational levels. Because the sample contained only first-year master's, second-year master's, and doctoral candidates, no differences were expected nor found. Means for the three groups ranged from 2.9 to 3.2, somewhat lower than would be expected for these educational levels.

Discussion. Interrater agreement was lower in this sample, both in exact agreement and within-one-position agreement, than in the residence hall, social work, and first teacher education samples. This was an unexpected result because distinction across positions was believed to be relatively clear prior to rating of these data. Closer examination

of the ratings and the original protocols revealed an unusually high number of brief responses uncharacteristic of previous samples. In rating these responses one rater inferred more complex thinking , whereas the other rater judged the simplicity of response to represent less complex thinking. This information demonstrated that under some circumstances responses were insufficient to permit accurate rating. The extremely low agreement on domain one, coupled with the generally low agreement on this domain in previous samples, prompted a revision of the initial question in that domain. The revised version specifically asked the respondent to discuss a major educational decision whereas the original version asked only for a major decision.

The means for educational levels were undoubtedly affected by the brevity of responses. The means are lower than expected on the basis of other research noted earlier, but are consistent with the first teacher education sample from the same institution. Limited educational levels and the brevity of responses resulted in little validity data from this study.

Correlational Study Sample

Sample. This random sample of 130 students was selected from a large Midwestern state university as part of a dissertation study. The purpose of the study was to examine the relationship between Perry developmental levels and Piagetian formal operational thought (Porterfield, 1984). Two hundred students were identified for the random sample, with 50 representing each of four educational levels. The final sample contained 36 freshmen, 28 seniors, 40 first-year master's students, and 26 doctoral candidates. It was necessary to solicit 16 freshmen from a required introductory psychology course to complete that sample group. Even though the sample consequently was no longer completely random, demographic characteristics of the 16 freshmen were not different than those of the other participants. There was a total of 61 female and 69 male participants, ranging in age from 17 to 52.

Procedures. Students received the MER by mail in spring 1984 and were given 10 days to return the instrument by mail. Those who did not return the materials were contacted by telephone and asked to return the MER as soon as possible. Rating was done independently by the two authors of the MER. Compromise ratings were determined for use in the correlation with Piagetian formal operational thought and for further validity study of the MER.

Results. Interrater agreement is reported in Table 8. Exact agreement was again lowest for domain one (52%) and highest for domain three (68%). The within-one-position agreement was highest in domains three and four (97% and 93% respectively) and lowest in domain one (82%).

Agreement on TPRs was 60% (exact) and 99% (within one position). All chi-squares were significant at $p < .001$. T values indicated moderate strength on exact agreement and high strength of agreement within one position.

Interrater reliability was high with an R of .81 ($F(129, 130) = 9.44$, $p < .0001$). Internal consistency improved considerably in this sample, with a coefficient of .74.

Validity data were available from this sample because of the intentional selection of diverse educational levels. Significant differences ($p < .0001$) appeared as expected. Stu-

Table 8

Exact and Within-One-Position Percentage Agreement by Domain and Total Protocol Ratings Between Two Raters for the Correlational Study Sample

	Exact	χ^2	T	Within One	χ^2	T
Domain						
One	52%	79.7	.39	82%	47.9	.63
Two	67%	177.2	.59	85%	58.1	.70
Three	68%	183.0	.60	97%	105.2	.94
Four	60%	128.5	.50	93%	87.9	.86
Five	55%	96.1	.43	88%	66.4	.74
Six	57%	109.4	.46	86%	60.8	.71
TPR	60%	128.5	.50	99%	116.3	.98

For all chi-squares df = 1, N = 130, $p < .001$

dent-Newman-Keuls post hoc comparisons revealed differences ($p < .05$) between graduate students, seniors, and freshmen. The freshman mean was 2.3, the senior mean was 2.8, the first-year master's mean was 3.3, and the doctoral candidate mean 3.6.

Discussion. Interrater agreement in this sample returned to a level similar to that in the first three follow-up studies. Interrater reliability increased to a level similar to that in the original study. Correlations for these two studies were probably higher because of intentional random sampling of diverse educational levels. Sample results essentially verified that improvements in the manual and questionnaire had resolved rating problems that had surfaced in the previous follow-up studies.

This study also added support for the validity of the MER based on differences in educational level. In addition, the freshman and senior means were similar to those in previous research and the original study. Means for the graduate students, although slightly lower than expected, were close to those in the original study and the social work sample.

The Learning Assistance Client Sample

Sample. Students seeking learning assistance at a mid-size Midwestern state university in fall 1985 were asked to complete the MER as part of a study on client satisfaction with tutoring. The study was intended to determine whether a developmental match of tutor and client intellectual developmental levels on the Perry scheme would increase satisfaction with tutoring received (Rogers, 1986). Of the 137 clients who completed the MER, 35 were freshmen, 79 sophomores, 13 juniors, and 10 seniors. The group contained 97

women and 40 men; only clients enrolling for 5 or more hours of tutoring were included. Completion of the MER was not a requirement for receiving tutoring. Those who volunteered to participate did not differ from nonparticipants on the basis of grade point average or academic major.

Procedures. An intake interview took place as clients arrived at the learning assistance center to request help. During this interview trained staff members explained the study and asked students to participate. Participants were given a MER to complete prior to their first tutoring session the following week. Rating of completed instruments was done independently by the first author and a second certified rater. Compromise ratings were provided for use in testing the satisfaction hypothesis and also for further study of validity.

Results. Interrater agreement, as evidenced by percentage agreement on domain and total protocol ratings, is presented in Table 9. A chi-square test of significance (Lawlis & Lu, 1972) is also noted in the table. Interrater agreement improved in this sample as

Table 9

Exact and Within-One-Position Percentage Agreement by Domain and Total Protocol Ratings Between Two Raters for the Learning Assistance Client Sample

	Exact	χ^2	T	Within One	χ^2	T
Domain						
One	58%	120.5	.48	95%	101.0	.89
Two	67%	188.6	.59	95%	101.0	.89
Three	72%	231.9	.65	99%	118.9	.97
Four	66%	182.8	.58	91%	84.9	.82
Five	67%	188.6	.59	90%	81.5	.80
Six	64%	160.4	.54	88%	73.1	.76
TPR	69%	205.4	.62	99%	122.7	.98

For all chi-squares df = 1, N = 137, $p < .001$.

evidenced by increases in exact percentage agreements. Domain three remained the highest at 72% whereas domain one remained the lowest at 58%. Remaining domains were in the mid-60% range. T values, ranging from .48 to .65 reflected the increased strength of agreement. Within-one-position agreement was in the 90% range with the exception of domain six at 88%. T values increased accordingly. Agreement on TPRs reflected similar results with 69% exact and 99% within one position. All chi-squares were significant at $p < .001$.

Interrater reliability resulted in an R of .59 ($F(136, 137) = 3.89$, $p < .0001$). The internal consistency coefficient was .60.

The educational level means were similar to those in data previously noted. The freshman and sophomore means were both 2.5, juniors' 2.6, and seniors' 2.8. Subsequently, no differences appeared as a result of analysis of variance. Only 10 seniors were included in the sample.

Discussion. Interrater agreement on domains continued to increase in this sample. The revised version of question one, used for the first time in this study, elicited higher agreement than did the original version in previous studies. Within-one-position agreement revealed that discrepancies of more than one position were rare. Interrater reliability was lower than expected on the basis of interrater agreement, most likely because of restricted ratings in the absence of large numbers of seniors. This same factor restricted use of this sample for testing validity even though the educational level means were consistent with expectations.

The Intervention Study

Purpose of the Study

This study was designed to test the hypothesis that tutoring experience would facilitate intellectual development on the Perry scheme. This hypothesis emerged from the similarity between the nature of the tutoring interaction and Perry's explanation of the type of experience that prompts change. Comparing one's views with those of another and working collaboratively through subject matter could be expected to provide the dissonance and support needed to reevaluate one's frame of reference. The study was conducted in a large peer tutoring program employing approximately 200 peer tutors who tutor 1,900 students per year in 35 courses. This program was selected because of its emphasis on collaborative learning. Training of peer tutors emphasized that the independent thinking of the client was to be facilitated through methods of discovery, questioning, and demonstration as opposed to telling clients the information they needed to know. Conducting a study involving a pretest and a posttest would also provide a validity test of the MER in determining the ability of the instrument to measure change over time.

Sample

All 175 tutors hired for the 1984-85 academic year received a letter introducing the study and explaining its purpose. Eighty-six agreed to participate. During the year 30 tutors dropped out of the study (15 resigned, 15 failed to return the MER). Thus 56 tutors completed both the pretest and the posttest. This group included 7 sophomores, 23 juniors, 25 seniors, and 1 graduate student. There were 21 men and 35 women, ranging in age from 18 to 24. Comparison of participating tutors with nonparticipating tutors revealed no differences on the basis of age or class rank.

Procedures

Tutors completed the MER before beginning to tutor in the fall. New tutors received the instrument in a tutor training class and returned it at the following class session. Experienced tutors not enrolled in the class obtained the instrument at the central office and returned it there upon completion. For the posttest at the end of the spring term, all tutors were contacted to pick up the MER and return it to the office upon completion.

All tutors were paid $4.00 for their participation. Pretest and posttest MERs were mixed for rating purposes to eliminate potential bias stemming from awareness of time of administration. Rating was completed by the first author and a second certified rater working independently. Compromise ratings were determined for use in testing the hypothesis and for validity purposes.

Results

Because the focus of this discussion is on reliability and validity of the MER, results reported here are those most relevant to that purpose. For further details regarding the hypothesis of the study see Baxter Magolda and Rogers (1987). Interrater agreement is reported in Table 10. Exact percentage agreement by domain on the pretest data ranged

Table 10

Exact and Within-One-Position Percentage Agreement by Domain and Total Protocol Ratings Between Two Raters for Intervention Study Pretest

	Exact	χ^2	T	Within One	χ^2	T
Domain						
One	68%	122.5	.60	93%	58.9	0.86
Two	83%	211.8	.78	97%	69.3	0.93
Three	76%	167.6	.70	100%	78.4	1.00
Four	74%	154.0	.67	97%	69.2	.93
Five	59%	79.7	.48	93%	58.9	.86
Six	63%	99.9	.54	90%	49.5	.78
TPR	77%	170.9	.71	100%	79.5	1.00

For all chi-squares df = 1, N = 86, $p < .001$.

from 59% to 83%. Agreement on domain one improved in this sample and was consistent with other domains. Within-one-position agreement was 90% or above on all six domains, with domains two, three, and four being 97% or above. Exact agreement on TPRs was considerably better at 77%, as was within-one-position agreement at 100%. All chi-squares were significant at $p < .001$. T values reflected the increased strength of exact agreement with two domains reaching the .70s.

Interrater agreement by domains was slightly lower on the whole and total protocol agreement slightly higher on the posttest protocols, as shown in Table 11. Exact agreement rose in domains one and five but decreased slightly in the remaining domains. Domain agreement remained generally high, ranging from 59% to 73%. Within-one-position agreement remained in the high 80% and 90% range, and all chi-squares were significant ($p < .0001$).

Table 11

Exact and Within-One-Position Percentage Agreement by Domain and Total Protocol Ratings Between Two Raters for Intervention Study Posttest

	Exact	χ^2	T	Within One	χ^2	T
Domain						
One	70%	84.4	.62	91%	34.3	.81
Two	73%	77.1	.67	89%	31.3	.78
Three	68%	78.4	.60	96%	44.4	.93
Four	61%	72.6	.51	91%	34.3	.81
Five	66%	72.6	.58	87%	28.4	.74
Six	59%	47.5	.49	80%	18.1	.59
TPR	80%	125.3	.75	100%	51.8	1.00

For all chi-squares df = 1, N = 56, $p < .001$.

Interrater reliability on these two samples revealed R = .76 ($F(85, 86) = 7.53$, $p < .0001$) for the pretest and R = .71 ($F(55, 56) = 5.89$, $p < .0001$) for the posttest. Alpha coefficients for internal consistency were .65 for the pretest and .58 for the posttest.

Validity in this study was explored through change from the pretest to the posttest. Educational level differences were not used because of the lack of freshmen and the limited number of sophomores and graduate students. As a group the sophomores went from a pretest mean of 2.62 to a posttest mean of 2.76. The juniors collectively exhibited a pretest mean of 2.78 and a posttest mean of 2.76, essentially showing no change. The seniors moved from a 2.94 pretest mean to a posttest mean of 3.07. Although the sophomores and seniors both demonstrated movement in the expected direction, no significant differences emerged between the pretest and posttest means for any of the groups. An exploration of individual pretest and posttest ratings revealed that 19 of the 56 participants were rated lower on the posttest than on the pretest.

Discussion

The lack of change from pretest to posttest did not add evidence for validity of the MER. However, a number of factors may have confounded these results. First, the actual time between pretest and posttest averaged 7 months because tutors did not begin tutoring until October and needed to complete the posttest in April to avoid conflicts between participation in the study and academic work required at the end of the semester. This time frame may not have been sufficient for developmental change to appear in their responses. Second, an analysis of the tutoring, conducted to further explore why the hypothesis of this study was not supported, revealed that tutors did not generally use the collaborative techniques they were taught in tutoring sessions (Baxter Magolda & Rogers, 1987). Instead,

they tutored in ways consistent with their own Perry levels and those of their tutees. This generally resulted in the tutor telling the tutee the information. This situation implies that the environmental components that we hypothesized would produce dissonance to foster developmental change did not have that effect. It is more likely that the tutors simply reinforced each others' current Perry levels.

The reliability findings of this study are positive, with levels of agreement and reliability generally equal to or higher than those in previous studies. The decrease in agreement on the posttest, although slight, may have been an additional factor of the lack of change from pretest to posttest.

The Interview Validation Study

Purpose of the Study

Although cross-sectional investigation of the MER continued to yield favorable results regarding validity of the instrument, a study exploring the effect of increased standardization of stimuli was necessary. Numerous researchers in the field of cognitive assessment, most notably Rest (1979), have reported that stimuli that ask the respondent to produce a response measure differently than those calling for recognition of stimuli provided. Although the MER retained the production task format, it did structure the respondent's frame of reference on a particular domain and ask specific follow-up questions.

Thus, it was essential to determine whether this increased standardization of stimuli measured the same underlying cognitive structures as did the unstructured interview methods Perry used to generate the scheme. This study was an attempt to validate the MER by comparison to a less structured interview.

Sample

Participants included 12 freshmen, 10 seniors, and 17 graduate students enrolled in a mid-size Midwestern state university during spring 1985. These groups were targeted to obtain a range of thinking on the Perry scheme. The freshmen and seniors were solicited from an interdisciplinary program. The graduate student group consisted of 10 master's students and 7 doctoral candidates in the School of Education.

All participants were volunteers. This did not pose a significant limitation to the study because the design called for comparing the two measures of each person's thinking. The age range of participants was 18 to 49. The freshmen were all 18 and 19, the seniors 21 and 22, and the graduates 22 to 49, with an average age of 30. Of the 39 participants, 19 were women and 20 were men.

Instruments

The MER was compared to a semistructured interview developed for the study. The interview was designed to provide minimal structure for a respondent's frame of reference, yet ensure that the respondent addressed the six domains measured by the MER. Perry's original interview, the only unstructured interview in existence, was too general to elicit data across the six domains. Caution was exercised in developing the interview to avoid influencing the nature of the response. The six interview questions were piloted prior to the

study to ensure that they provided maximum freedom of response and elicited responses in the content areas of interest.

The interview began with the subject of the role of the learner, instructor, and peers. The respondents were asked what role they preferred to play in learning to make learning most effective for them. They were free to respond in any direction and were encouraged to elaborate on their responses to their satisfaction. The interviewer asked why they preferred the role(s) they indicated only if there was no mention of reasoning in the response. The domains of the roles of instructor and peers were addressed in the same fashion. For the remaining domains respondents were asked how they thought their work in college should be evaluated, how they decided what to think when they encountered discrepant information in the learning process, and how they made major educational decisions. As in the first three domains, the interviewer refrained from any comment and asked why only as necessary.

If respondents requested clarification the questions were repeated. The interviewer refrained from any behavior that would indicate approval or disapproval of the response. The interviews ranged from 20 to 60 minutes with an average of 30 minutes.

Procedures

Participants were solicited through a letter and handout that explained that the study was to determine how students learn best and how best to gather this information from students. Participants were not told the true purpose of the study to avoid intentional or unintentional effort on their part to respond in the same way to both measures. Upon agreeing to participate, each student was scheduled for an interview.

The interviews were conducted by the first author in an office setting over a period of 3 weeks. The interview preceded the administration of the MER to avoid any potential effect of the structure of the MER on a respondent's frame of reference. All interviews were tape-recorded.

Participants completed the MER individually beginning 2 weeks after their interview. This time frame allowed for sufficient distance between the two measures to avoid participants' repeating the same responses from memory. The longest time span for return of the MER was 4 weeks, which minimized the chance of any significant experience that would potentially alter respondents' thinking.

The MER data were rated using standard procedures described in chapter 3, including separation of data by domain prior to rating, removal of identifying information, and independent rating by two raters. The interview data were transcribed and coded, and all identifying information was removed prior to rating. These data were also separated by domain to facilitate rating by domain rather than by complete interviews. Because this process is used to increase objectivity in the MER rating process, it was necessary to be consistent in rating the interviews. Perry's original descriptions of Positions One through Five were used to rate the interview data. The raters read the entire domain response, identified the main reasoning used, and assigned the position it most closely matched. Upon completion of independent rating by the first author and a second certified rater, compromise ratings were determined for the MER and for interview data to be used to correlate the two measures.

Results

The major purpose of this study related to validity, so that information is reported first. The Pearson Product Moment Correlation coefficient was used to determine the relationship between the total protocol ratings on the MER and the interview. The correlation was .93 ($p < .0001$), indicating a highly significant positive relationship between the two sets of scores. MER score means for freshmen, seniors, first- and second-year master's students, and doctoral students are shown in Table 12. These means increased with class

Table 12

MER and Interview Mean Ratings by Class Rank

Class Rank	N	MER Mean	Interview Mean
Freshmen	12	2.57	2.61
Seniors	10	3.23	3.31
First Year Masters	5	3.81	3.82
Second Year Masters	5	3.92	4.13
Doctoral	7	4.09	4.30

rank as would be expected from previous research. Table 12 also shows the interview score means for the same class ranks. The interview score means were slightly higher, particularly in the doctoral student group.

Interrater agreement and reliability are useful for the credibility of the correlational results as well as for reliability purposes. Interrater agreement for the MER data by domain and total protocol ratings is reported in Table 13. Exact domain agreements ranged from 44% in domain five to 62% in domain one. The within-one-position agreement revealed that most disagreements were not discrepant by more than one position because the lowest agreement in that category was 77%.

The remaining domains were in the mid-80% and low 90% area. TPR agreement was similar with 56% exact and 97% within one position. All chi-squares were significant at $p < .001$.

Interrater agreement for the interview data is shown in Table 14. Exact agreement was slightly higher for the interview protocols than the MER protocols, ranging from 51% in domain six to 77% in domain one. Agreement within one position was consistently high, with all domains in the 90% range except domain six (87%). TPR agreement was 72% exact and 100% within one position, with all chi-squares significant at $p < .001$.

Finally interrater reliability revealed an R of .81 ($F(38,39) = 9.31$, $p < .0001$) for the MER data and $R = .88$ ($F(38, 39) = 15.40$, $p < .0001$) for the interview data. Internal consistency coefficients were .84 and .85 for the MER data and interview data respectively.

Table 13

Exact and Within-One-Position Percentage Agreement by Domain and Total Protocol Ratings Between Two Raters for Interview Study MER Protocols

	Exact	χ^2	T	Within One	χ^2	t
Domain						
One	62%	40.5	.52	87%	18.8	.73
Two	51%	22.7	.39	92%	25.5	.84
Three	56%	31.0	.46	85%	16.1	.68
Four	54%	26.7	.42	92%	25.5	.84
Five	44%	12.7	.30	77%	9.8*	.52
Six	56%	31.0	.46	85%	16.1	.68
TPR	56%	31.0	.46	97%	31.5	.90

*For chi-square df = 1, N = 39, $p < .01$.
For all remaining chi-squares, df = 1, N = 39, $p < .001$.

Table 14

Exact and Within-One-Position Percentage Agreement by Domain and Total Protocol Ratings Between Two Raters for Interview Study Interview Protocols

	Exact	χ^2	T	Within One	χ^2	T
Domain						
One	77%	76.9	.71	95%	28.8	.89
Two	69%	57.3	.62	92%	25.5	.84
Three	56%	31.0	.46	92%	25.5	.84
Four	72%	63.5	.65	100%	36.1	1.00
Five	54%	26.8	.42	92%	25.5	.84
Six	51%	22.7	.39	87%	19.4	.73
TPR	72%	63.5	.65	100%	36.1	1.00

For chi-squares df = 1, N = 39, $p < .001$.

Discussion

The correlation of .93 between the MER and interview scores clearly indicated that assessment of intellectual development with the MER was consistent with assessment through a more open-ended interview format.

This provided strong evidence that the MER's increase in structure of the stimuli does not significantly change the ability of respondents to project their own frame of reference. In addition, it implied that the MER format, which solicits justification for response, elicited sufficient data to accurately judge Perry level. Generally speaking, the MER responses were far briefer than the detailed accounts offered in the interviews. It seemed that the direct request for justification elicited the essence of the respondent's thinking without restricting the frame of reference.

The strength of interrater agreement and reliability for both the MER and interview scores indicated that raters independently arrived at very similar ratings for responses on both measures. This lends credibility to the rating process for each measure and subsequently to the use of the ratings for correlational purposes. The slightly higher agreement of interview scores implied that the additional details provided in the interview may reduce the amount of rater inference that is necessary to arrive at a rating. Despite this, intraclass correlations and internal consistency coefficients were nearly identical for both the MER and interview scores.

The MER and interview scores also seemed to be accurate when viewed by class rank. Both sets increased with class rank as would be expected on the basis of previous research (Heidke & Omahan, 1981; Meyer, 1977; Moore, 1982). The higher scores resulting from the interviews implied that some of the complexity of the respondents' thinking may be lost with the written format. Doctoral students' MERs and interview transcripts were reviewed because this group's scores differed the most between the MER and interview scores. The review showed that some respondents articulated their ideas in a brief fashion on the MER, leaving the rater to judge whether the implied more complex thinking was really representative of the respondent. Although these data suggested that the interview format may still provide the best picture of the respondent's thinking, the correlation between the MER and the interview revealed that little sacrifice of accuracy occurred with the use of the MER.

Conclusions

Collectively the studies reported in this chapter provide strong support for the MER as a reliable and valid measure of intellectual development on the Perry scheme. Exact domain agreement, the most stringent test of reliability, varied from moderate to high across samples. Only in one domain in one sample was there a nonsignificant chi-square. Levels of domain accuracy suggest that domain ratings are not strong enough to be used alone. Exact agreement on total protocols was generally high. This, together with high interrater reliability in all samples with varied educational levels, demonstrated that the MER can be rated consistently. Internal consistency coefficients also support the reliability of the MER.

The cross-sectional studies have contributed to the refinement of the instrument and the rating manual. Manual distinctions between Positions Two and Three generated in the initial validation study were verified as improvements in the residence hall sample ratings.

Similar distinctions between Positions Three and Four that developed as a result of the social work sample data were verified as effective in the first teacher education sample. The second teacher education sample demonstrated the need to narrow the context of the decision-making question on the instrument. This change increased interrater agreement on domain one as demonstrated in the learning assistance client sample. The correlation study permitted a true test of manual revisions because of the range of educational levels and random selection involved. Results indicated that the revisions were useful in increasing reliability. Thus the empirical verification process enabled by the cross-sectional studies improved the rating manual and the instrument.

Validity data from the follow-up studies also provide strong support for the MER. In the three cross-sectional studies that contained a range of educational levels, significant differences among educational levels emerged as expected. Means for various educational levels in most studies were consistent with those in previous research. The high correlation of the MER with the open-ended interview reduces the concern that increased structure of stimuli reduces accuracy. These data collectively suggest that the MER accurately measures intellectual development on the Perry scheme.

Although further validity testing in the form of longitudinal research is still needed, the current data provide a foundation for using the MER in applying theory to practice. The reliability and validity of the MER result in an accurate, practical form of assessment for use in practice. The use of a written instrument reduces the training and resources needed for data collection. The standardization and degree of specification of the rating manual facilitate its use by practitioners and researchers. Chapter 5 describes 19 current applications of the MER in student services and academic contexts.

CHAPTER FIVE

USING THE MEASURE OF EPISTEMOLOGICAL REFLECTION IN PRACTICE: CURRENT APPLICATIONS

Introduction

Current applications using the Measure of Epistemological Reflection (MER) demonstrate its value in overcoming the obstacles inherent in previous assessment techniques. The practicality of using the MER is evident in 19 current projects in numerous student services contexts. The projects are summarized here to provide examples of linking theory and practice.

The 19 projects are organized into three categories. First presented are those that represent developmental design applications of theory. These projects all involve designing practice on the basis of MER scores. Collectively this group of projects addresses both student services and academic practice. The second category of projects involves those that answer questions central to enhancing practice. For example, determining the relationship of involvement in campus activities or paraprofessional roles to cognitive development will aid student services professionals in designing developmental opportunities for students. The numerous questions addressed by this group of studies have relevance for classroom and student services practice. These studies are particularly significant given their potential to provide evidence of relationships to guide future applications. Finally, projects that measure outcomes are reported. These projects illustrate the use of assessment data to evaluate practice and document its effect on students.

Developmental Design Applications

Applications using the MER focus on teaching paraprofessionals, undergraduates, graduate students, and faculty. These settings, which include both student services and curricular contexts, are likely starting places for application because their prearranged structure facilitates assessment and practice design. Student services professionals are offering

more of their services through curricular avenues to award students credit for learning skills for career development, leadership, and human relations. Thus, the initial applications using the MER combine student services content and a classroom environment.

Undergraduate Student Services Courses

Lawson, Isaakson, and Heaps (1986) used the Perry scheme in designing an introductory career education course at Brigham Young University, a large, private institution in the Northwest. The 16-week course focused on identity development, decision making, the learning process, the process of valuing, and methods to decide what is true. The course content and instructional methods were intentionally designed using developmental principles. Random selection of 10 students from 10 sections resulted in a group of 100 students, predominantly freshmen. Students were given the MER at the beginning and again at the end of the course. Gain scores, or differences between the pretest and posttest, were obtained for overall ratings and domains. Analysis of variance of gain scores using the pretest as a covariate revealed no significant differences. No differences occurred on the basis of section or gender. Comparison of gains by domains did, however, show significant differences ($p < .05$). Domains one, three, and four all revealed greater gain than did domain six. Remaining comparisons were not significant. The investigators speculated that change appeared in these areas because of the class focus on decision making and the developmental design that called for instructor and peer roles to be different from those in traditional classes.

Student Personnel Graduate and Paraprofessional Training

Intentional instructional design using MER scores in a graduate course provided an opportunity to explore the use of relativistic instructional strategies (Baxter Magolda, 1987a). Twenty-one graduate students in the college student personnel preparation program at Miami University enrolled in the course on student development theory. This group included 8 first-year graduate students, 12 second-year students, and 1 doctoral student. The group completed the MER in the first week of the 16-week course. The class format, structured to match the relativistic design suggested by Widick and Simpson (1978), included loose structure in reading assignments and class activities and high interaction among students and with the instructor in class. Assignments afforded students maximum freedom to choose the direction of their work and enhanced personal interaction by focusing on discussion of the students' own development. Personal feedback was also provided regarding students' development through use of assessment instruments for theories under study. The objectives of this course design included subject mastery, student satisfaction with the learning experience, and personal growth. Because most students were in relativistic positions on the Perry scheme, movement in positions was not expected to be evident after 16 weeks. Thus, the MER was not administered as a posttest. Instead, student satisfaction was assessed through routine course evaluation and a form specifically designed to address design components. Results indicated extremely high student satisfaction on both the university evaluation form and the specially designed form (Baxter Magolda, 1987a). Subject mastery was high on the basis of course grades and student perceptions of knowledge acquired. This study indicated that attention to design for relativistic students is equally important to meeting dualistic students' developmental needs.

A third student services application included both classroom and traditional staff training components. The MER was used as a basis for training paraprofessional resident advisors at The Ohio State University. The 10,000-bed housing facility employed 165 undergraduate staff members to perform advising, counseling, programming, discipline, and administrative functions on residence hall floors. Resident advisor training included a one-week preservice training period, a 10-week class for first-time staff members, and inservice training conducted within hall or geographic area groups. All 165 staff members hired for the 1983-84 year completed the MER in spring 1983. Training designed for the entire group for the preservice period and the course was based on the intellectual development data provided by the MER. These data were then forwarded to individual professional staff responsible for inservice training. No posttest measure was used because the preservice and course training periods were too short to measure developmental change. The data were also used to guide supervision and prompted staff members to formally conceptualize a developmental design for supervision (Ricci, Piper, & Porterfield, 1987). The contribution of this project to reliability data for the MER was discussed in chapter 4.

Faculty Development

The Perry scheme has been a source of faculty development seminars since its publication in 1970. However, prior to the availability of assessment instruments, these seminars focused on how to respond to various intellectual developmental levels without direct data about the students involved. The next three projects discussed involved the use of MER data to guide faculty teaching and advising of students enrolled in their programs.

The first project of this type occurred in The Ohio State University College of Social Work. Students enrolled in the college ranged from juniors to doctoral candidates. All students enrolled in 1983 were asked to complete the MER and 121 volunteered. The data from these students were used by the college faculty to increase their awareness of the intellectual developmental levels characteristic of their own students as a group, and to discuss ways to enhance teaching methods, the curriculum, and advising services to their students. Because the purpose of this project was to provide insights for the entire college faculty to use, no specific applications or posttest measures were employed. The contribution of this project to reliability and validity of the MER was also noted in chapter 4.

A residential liberal arts program at the University of Colorado, which enrolls high school seniors in a summer program, also used the MER to provide insights for teaching faculty (Kelso, 1986). The faculty were interested in understanding potential differences between the high school seniors attending the summer program prior to their last year of high school and entering freshmen. An initial pilot project was conducted in which 15 students in each group completed the MER. Unfortunately, the data did not provide the insights of interest to the faculty. Nearly half of the MERs for each group were unratable because of brief or no response. A few students wrote on the instrument that it was too long, and one expressed inability to answer the questions. Although the remaining instruments were ratable, the small number reduced the value of the data. All students in the high school senior group were rated in Position Two with some Position One thinking present. Students in the college freshmen group were rated in Position Two. The only difference between the two seemed to be ability to relate to the questions, with the college freshmen group on the whole slightly more comfortable with the context of the instrument. The major contribution of this pilot project is in presenting evidence that the MER in its present form may not be suitable for precollege students.

Direct use of developmental data in faculty development can more readily be incorporated in formal training programs. Applegate's (1986) project in a teacher education program at Kent State University, a large, Midwestern institution, illustrates the use of intellectual development data to guide training and measure its effect. Thirty students completed the MER at the beginning of the program in conjunction with an individual advising session. The pretest MER scores are being used in combination with additional data from observations, interviews, standardized measures, and anecdotal records to structure training experiences. The goal of the program is to foster inquiry and diverse thinking about teaching. The students will be given a posttest at the end of their program to determine the effects of the experience.

Investigative Projects to Enhance Practice

Student Involvement and Intellectual Development

The effect of students' involvement in the campus community on their development has been discussed by numerous theorists. Chickering (1969) emphasized the importance of interaction with faculty and administrators as well as the peer culture in fostering psychosocial maturity. Cognitive developmental theorists such as Perry (1970) and Kohlberg (1969) suggested that growth depends on interactions with others of different perspectives. Astin (1984) agreed that increased involvement leads to increased maturity. Student services professionals have observed increased maturity in students who are active participants in campus groups and have paraprofessional roles. However, the effects of specific types of involvement have not been determined. The need to clarify the relationship between various types of involvement and intellectual maturity prompted the next three studies.

Rode's (1986) investigation of the effect of paraprofessional training and work experience represents the most comprehensive attempt to address paraprofessional roles. The study includes paraprofessional orientation and campus information assistants, admissions representatives, and residence hall staff at Northern Illinois University. To investigate the hypothesis that paraprofessional training and work experience enhance intellectual development, Rode administered the MER to approximately 50 paraprofessional staff and to an equal number of student leaders with similar characteristics, but not in paraprofessional positions. The initial administration occurred prior to the training of the paraprofessional staff in order to establish intellectual development levels prior to training or work experience. Two subsequent administrations to both groups occurred at 3-month intervals, one following paraprofessional training and one following 3 months of experience of those in paraprofessional positions. Data are currently being analyzed to determine the effect of training, work experience, and the combination of the two. Although changes resulting from training are unlikely to appear in such a short time frame, Rode's study should provide insight into the effect of training and work experience combined.

The effect of the paraprofessional or peer tutoring role on intellectual development has also been studied through use of the MER (Baxter Magolda & Rogers, 1987). Results of that study, reported in detail in chapter 4, suggested that paraprofessional training was less influential than tutors' intellectual development levels in determining their tutoring behavior. Tutors chose tutoring practices that matched their view of knowledge rather than the collaborative practices their training emphasized. Although the results indicated that

the paraprofessional experience had no measurable effect on tutors' intellectual development, the study underscored the importance of matching learning experiences to students' intellectual development. New insights for the tutor training program emerged, subsequently enhancing practice.

Student services professionals are equally interested in students who do not hold paraprofessional positions but who are recipients of various campus services. The relationship of this broader type of student involvement was the focus of a study at Fort Hayes State University (Songer, 1987). One hundred ninety six students, from all class ranks, completed the College Student Experiences Questionnaire, or CSEQ (Pace, 1983), and the MER. Comparison of the CSEQ and MER scores revealed no statistically significant relationship between cognitive development and involvement. Songer's research suggested that more specific studies are needed to aid practitioners in guiding students in the use of campus resources and structuring activities to maximize growth.

Student Characteristics and Intellectual Development

Development of the whole student has been the traditional philosophy of student services professionals. This philosophy recognizes that emotional and cognitive development are intertwined as are a student's academic and personal life. Theoretical foundations of student services have traditionally addressed emotional and social development as well as intellectual development, although the relationship of various strands of development are often unclear. Increased understanding of the connections between types of development are necessary to serve student needs effectively. Interest in the relationship between various personality characteristics and intellectual development led Smart and Turner (1986) to administer the MER to 50 freshmen and sophomores at the University of Northern Colorado and nearby Aims Community College. In addition, students responded to the California Psychological Inventory (CPI), the Sixteen Personality Factor test (16 PF), and the Rotter Internal-External Locus of Control test. The investigators are exploring correlations of MER scores with the tolerance and flexibility scales of the CPI, the conservative-experimenting scale of the 16 PF, and the internal-external locus of control measure.

Clarification of these relationships could provide important insights for those student services professionals involved in the counseling and advising of students. The manner in which students with varying degrees of tolerance and flexibility interact with their social and academic environment is likely to be different. Placement on the conservative-experimenting scale might affect the student's approach to learning and progress in acquiring more complex forms of thinking. Locus of control would similarly affect a student's reaction to learning experiences both in and outside of the classroom. Understanding of the role these personality characteristics play in the student's experience would aid practitioners in advising students in selecting extracurricular and curricular learning opportunities to maximize growth, assist those who encounter difficulties with their learning environments, and provide guidance for those whose characteristics impede personal or intellectual growth.

The Environment and Intellectual Development

The influence of the college environment has been the source of extensive research in recent years as student development educators have tried to integrate student development knowledge in their attempts to create growth-producing environments. Two projects

related to the study of the environment are using the MER to explore environmental impact on intellectual development. The first is a 5-year longitudinal study begun in 1985 with 800 randomly selected freshmen at Western Washington University (Sherwood, 1985). Various types of student involvement, such as campus activities and living arrangements, are being monitored along with MER scores each year. Additional variables, particularly student characteristics and crisis situations encountered, are being monitored in order to obtain a complete picture of the variables affecting intellectual growth. The main focus of the study is on determining the impact of the particular environment at Western Washington University, but the inclusion of numerous variables should provide useful insight into other college environments.

A Canadian university environmental study group, located at the University of Guelph, is using a general systems approach to exploring the university environment (Pettigrew & Benjamin, 1987). The purpose of this project is to ascertain the type of environment that fosters personal and intellectual growth in order to design student services and academic opportunities to maximize student development. To develop a database on the student population, the MER was administered to 125 entering freshmen in 1986 and 1987. These data are being used in conjunction with other information on students, their families, and the environment to plan environmental interventions.

Learning Preferences and Intellectual Development

Educators routinely discuss the merits of various teaching methods with the goal of identifying those that best facilitate learning on the part of students. Student development educators have contributed an important component to this discussion by focusing initially on the students as opposed to the teaching process. Designing teaching methods on the basis of intellectual development has shown promise in promoting effective learning, as illustrated by the examples summarized in chapter 2. The three projects discussed next explore the effect of intellectual development levels on particular forms of learning and the relationship of intellectual development to learning styles.

Although the majority of learning experiences involve evidence for particular points of view, some learning contexts address contradictory views and supporting evidence more directly than do others. One such example is a composition course at Montana State University in which students study forms of argument. On the basis of pilot data using the Measure of Intellectual Development (Moore, 1982), Ramage and Kurfiss (1986) hypothesized that students' intellectual development levels would affect their response to various forms of argument. They administered the MER to 60 students in the composition class prior to exploration of argument forms. The students were then presented with current issue essays that reached the same conclusions through use of different argument strategies. Two essays used personal opinion, examples, and anecdotal evidence as the basis for their stance whereas the other two focused on the issues involved. In each set of essays, one presented only one point of view and the second presented a two-sided argument. Students individually evaluated each essay's strengths and weaknesses, choosing the essay they found most persuasive. Following individual evaluation students were assigned to small groups evenly balanced with persons who disagreed and agreed with the position in the essays. The groups engaged in a concensus activity to arrive at a group evaluation. Students individually evaluated the essays a second time. Class discussion following completion of evaluations focused on identification of criteria readers used to react to the type of essays being studied. This format allowed exploration of the relationship of Perry posi-

tion and initial preference for argument forms, and the effect of collaboration with peers on preference for argument forms.

Upon completion of the rating the investigators expect that the students preferring one-sided essays will be rated as dualistic, and those preferring two-sided essays as multiplistic or relativistic. Those rating experiential essays higher are expected to be dualistic or multiplistic, and those scoring issue-based essays higher to be relativistic. Collaboration is expected to increase students' appreciation for presenting both points of view, with the exception of dualistic students. If the ratings support these hypotheses, realistic expectations of students at various Perry levels will be clarified. Results of the collaborative component will help determine the impact of that component on various levels of thinking. This insight is most directly useful in the classroom where students are often expected to analyze situations with multiple sides.

A second area of interest to both academic and student service educators is the degree to which students can engage in self-directed learning. Self-directed learning can be viewed as an alternative to the traditional classroom experience or student services program for those who find it difficult to take advantage of those experiences. It can also be seen as a component of coursework or student services delivery applicable for those students who benefit from independent learning experiences. Appropriate use of self-directed learning opportunities depends on identification of those students who benefit from them. Thus, Shaw's (1987) correlation study of the relationship of Perry levels to self-directed learning is an important step in achieving this goal. Shaw's project involved 100 students enrolled at Montana State University. The group included all class ranks, as well as postbaccalaureate degree students, in an effort to incorporate a range of intellectual development levels and other factors that affect preferences for self-directed learning. Ability and preference for self-directed learning, measured by the Oddi Continuing Learning Inventory (Oddi, 1986), were correlated with Perry levels as assessed by the MER. Shaw found a small, but statistically significant correlation ($r = .21$, $p < .05$). She also reported that age and class rank were each correlated with both the MER and OCLI. Although further research is needed to isolate the effect of intellectual development, age, and class rank, Shaw's results do suggest that self-directed learning would probably be more effective with more intellectually mature students. It is also possible that self-directed learning opportunities, if managed appropriately, might be a catalyst for intellectual growth.

Finally, the effect of individual learning preferences that apply to all learning contexts and formats warrants exploration. Kolb's (1984) description of learning styles identified student preferences in gathering and processing information. Because Perry's scheme also implies student preferences in gathering and processing information, possible relationships between learning styles and intellectual development need clarification. A study involving 100 randomly selected students at Miami University, a mid-size, state institution, allowed for comparison of scores from Kolb's Learning Style Inventory to MER scores (Baxter Magolda, 1987c). In the first-year data of the 5-year project, distribution of students was fairly balanced across the four learning styles. The mean MER scores for each style were nearly identical, with a mean of 2.4 for the converger style and 2.5 for the remaining three. Because all students were freshmen and had a restricted range of MER scores, the comparison did not yield insight about possible relationships between Perry level and learning style. The ability to explore these relationships will emerge as the pattern of learning styles and MER scores becomes evident in the longitudinal data.

The MER as an Outcomes Measure

Evidence of the effect of student services on students has become increasingly important in recent years as competition for resources within the higher education community increases. With the rise of criticism of the academic arena noted in numerous national reports, evidence of the impact of college curricula is equally important. Because intellectual development is undoubtedly one of the major goals of higher education, the ability to demonstrate intellectual development as an outcome of a student service or an academic curriculum is essential. The studies reported next demonstrate use of the MER as an outcomes measure for individual courses, academic programs, and student service programs.

Outcomes of student services courses are useful in judging the merits of providing service through the curriculum. Straub (1986) used the MER as an outcomes measure in a leadership course at the University of Michigan. The course was designed to enhance students' leadership skills. The 36 undergraduates, enrolled in two sections of the course, completed the MER at the beginning and end of the 16-week class. The total group included 6 freshmen, 8 sophomores, 11 juniors, and 11 seniors. Because no significant differences emerged between pretest means for the two groups, they were merged for further analysis. Significant differences did appear between the pretest and posttest mean MER scores for the total group. Analysis of differences by domain scores indicated that significant differences appeared in the role of the learner, role of instructor, and evaluation. Because no comparison group was available, it is uncertain whether the increase in intellectual maturity stemmed from this course. It is probable that the developmental approach used in the course did affect students' perceptions of themselves as learners, their instructors, and the evaluation process. The project's major contribution is in providing evidence that change can be measured in an individual course of a relatively short duration.

The merits of a liberal arts education are the focus of a study (Schilling, Flickinger, & Sekerka, 1986) underway at Miami University, which houses an interdisciplinary program of study. The interdisciplinary program is characterized by a living-learning component, high student-faculty interaction, and a common core curriculum that serves as a foundation for individual majors developed by students. Eighty freshmen from the interdisciplinary program and 80 freshmen from other programs at the institution completed the MER in their first semester. The two groups were matched on the basis of ACT scores, gender, and majors. Similarly, 60 interdisciplinary program seniors and 60 noninterdisciplinary seniors completed the MER. They were also matched on the same variables. Comparison of the freshmen and seniors in the interdisciplinary program is intended as a cross-sectional measure of outcomes of the program. The same comparison for noninterdisciplinary students will explore whether their educational outcomes differ from those in the interdisciplinary program. Results of the study will be most directly useful in evaluating the structure and curriculum of the interdisciplinary program and providing evidence of its value in fostering intellectual development. Comparison to students outside of the program may provide useful insights into the value of other programs as well. Assessment of reading and writing skills is also incorporated in the project.

A similar study with a longitudinal design began in 1986 to compare early childhood education programs in two Canadian provinces (Cleave-Hogg, 1986). The programs, which prepare students to become teachers in day care centers, vary in length. Questions regarding the value of a 2-year versus a 3-year program prompted the project. The MER is being administered to students in both programs upon entrance and again at graduation.

Comparison of the changes in MER scores will reveal the degree of intellectual growth in each program. In addition comparison of the growth occurring in both programs will provide information on the value of the third year in fostering intellectual maturity.

The total educational environment is the focus of another study of outcomes begun in 1986 at the University of Toronto. Rothman and Cleave-Hogg (1986) are analyzing the environment of a traditional 4-year Canadian medical school to determine its impact on student development. A portion of the project involves assessing intellectual development through use of the MER. One third, or approximately 80, of the entering students in 1986 completed the MER as did 20 students from each of the second- , third- , and fourth-year classes. All were randomly selected. Comparison of these four groups is expected to reveal the pattern of intellectual growth over the 4-year period. The same process will be repeated with students entering in 1987 and their fellow students in the second, third, and fourth years to obtain a second reading of intellectual growth. This information, in combination with a number of other variables under study, is expected to determine the effects of the current educational environment on student growth.

Finally, a number of the projects discussed in the previous categories of developmental designs and investigative projects also serve as outcomes measures of intellectual development. Sherwood's (1985) 5-year longitudinal data will serve as an outcomes measure of education at that institution because the students were randomly selected and can be compared on numerous other variables monitored by the study. Applegate's (1986) pretest-posttest design will result in data indicating the outcome of her teacher training program. Outcomes of individual classes are revealed to some degree by the Lawson, Isaakson, and Heaps (1986) data, although the time lapse between pretest and posttest make accurate judgment of outcomes difficult. Rode's (1986) posttests will provide outcomes measures of involvement in paraprofessional roles in student services.

Conclusions

Although a number of the projects described in this chapter are not yet completed, they demonstrate the wide range of possibilities that exist to enhance practice and document its effectiveness. The collection of projects also illustrates the utility of assessment of intellectual development in both student services and academic endeavors. It is particularly important to note that many of the projects conducted in academic settings will provide useful data for student services practice. Because the MER is a new instrument it has yet to be used extensively in practice. Chapter 6 conceptualizes plans for possible ways in which the MER can be used to enhance both student services and academic practice.

CHAPTER SIX

FUTURE DIRECTIONS FOR THEORY, ASSESSMENT, APPLICATION, AND EVALUATION

The projects described in chapter 5 illustrate the utility of the Measure of Epistemological Reflection (MER) for linking theory and practice. This chapter presents potential contributions of the MER to the four components of theory, assessment, application, and evaluation.

Theory

Developmental theory emerges from extensive study of individuals to identify structural patterns. Perry's theory of intellectual development emerged in this fashion and offered the foundational description of structures through which college students view knowledge. Kohlberg's model of phases in developmental research (Gibbs & Widaman, 1982) suggested that theory generated in the first phase could be validated by a second phase that involves the development of assessment techniques. Use of these techniques in the third phase provides the opportunity to solicit data on a broader scale to refine the theory. The MER enables phase three research to refine intellectual development theory.

The MER to date has refined intellectual development theory in three ways, the first being an elaboration of the Perry scheme. Student responses upon which the original MER manual was built helped to clarify student voices from each of the first five Perry positions. Categorization of these voices provided a more specific description of reasoning structures within each position. Subsequent empirical validation of the MER manual resulted in the elimination of theoretical reasoning structures that were not validated by data and in the emergence of finer distinctions between reasoning structures across the five positions. Consequently the MER manual, contained in chapters 9 - 14 of this volume, provides a more detailed account of intellectual development than was possible from the original Perry data.

The initial value of increased specificity is in greater understanding of student perspectives for practical purposes. However, greater specificity also sets the stage for comparing various theoretical explanations of intellectual development to increase our theoretical understanding. One of the most detailed theoretical models of intellectual development is the Reflective Judgment model of Kitchener and King (1981) described in chapter 1. This model emerged in the interest of examining intellectual development apart from the ethical and identity dimensions inherent in Perry's description (Kitchener & King, 1985). Extensive research on the model resulted in specific descriptions of seven stages characterized by different assumptions about knowledge, how it is acquired, and how one justifies one's beliefs. Comparison of these stages with those described on the basis of MER data reveals numerous similarities, particularly in the first four stages. Kitchener and King's (1985) stages provide finer distinctions in the last three stages than do those evident in Perry's original scheme. Because the MER data provide reasoning structures to elaborate Perry's Positions Four and Five, exploration of similarities between the Perry scheme and the Reflective Judgment model could enhance understanding of intellectual development. The second area of theory refinement made possible by the MER relates to expanding theoretical descriptions to include a broader range of populations. One of the essential areas of exploration is in gender differences because the original Perry scheme was based largely on men. The description offered by the MER data includes both men and women, but direct study of gender differences is necessary to ensure that the method of assessment is not biased toward the original theory. A 5-year longitudinal study (Baxter Magolda, 1987c) is in progress comparing male and female intellectual development from the freshman to the senior year plus one year after graduation. Unstructured interviews are being used concurrently with the MER to avoid bias on the basis of assessment method.

The 5-year data will help determine differences at various points in the college experience as well as differences in the progression of development. Additional populations, such as minority and nontraditional students, not included in the original theory, should be similarly studied.

Third, the MER facilitates exploration of theoretical models related to intellectual development. Learning styles are incorporated into the 5-year longitudinal study described above (Baxter Magolda, 1987c) on the hypothesis that the way students approach learning interacts with their intellectual development. Exploring relationships between intellectual development and other types of development is also essential. Most developmental theorists would agree that strands of development are intertwined and that clarifying these connections would enhance our understanding of individual strands as well as overall development. Psychosocial, affective, moral, ego, and personality development are a few logical areas to be pursued in relation to intellectual development.

Assessment

The major goal of developing the MER was to increase the practicality and accuracy of assessing intellectual development. The reliability data summarized in chapters 3 and 4 provide strong support for the reliability of the instrument. Equally important is the maintaining of this reliability with self-trained raters, to be discussed in chapter 7. The ability of raters to learn the scoring process through the workbook format presented in chapters 8 - 14 makes assessment more accessible to researchers and practitioners without sacrificing

reliability. The validity data, also reported in chapters 3 and 4, demonstrate that the MER is an accurate measure of intellectual development.

Further study of both reliability and validity is important to firmly establish the accuracy of the MER. The study of reliability is possible in each use of the MER by examining interrater agreement and reliability and internal consistency. Current and future projects will provide a continuing source of reliability data for the instrument. Further data are needed to augment the cross-sectional data currently available for validity purposes. Two 5-year longitudinal studies (Baxter Magolda, 1987c, Sherwood, 1985) will provide the essential test of whether the MER measures increasing complexity with the same students across the college experience. In addition the Baxter Magolda study's inclusion of an unstructured interview will offer a more extensive test of the effect of increased standardization of the MER. Additional longitudinal studies and cross-sectional studies with various populations are needed to add to the validity database.

As was noted in the discussion of development of the MER, its construction combined standardization of stimuli articulated by Gibbs and Widaman (1982) and rating manual construction procedures offered by Loevinger and Wessler (1970). Just as those works served as models for the MER, the MER serves as a model for developing assessment techniques in other areas of cognitive structural development. More practical assessment would help with application of other theoretical frameworks as well as theory refinement.

Application

Application is the crucial step in making use of our theoretical knowledge. Numerous applications of the Perry scheme were summarized in chapter 2, and current applications using the MER were discussed in chapter 5. Many additional possibilities exist for applications of intellectual development theory in student services practice using the MER. Because use of theory in practice is the major objective underlying this book, this portion of the chapter is intended to provide conceptualizations of possible projects for practitioners. The projects conceptualized here rest on the assumption that students' intellectual development mediates how they interpret their entire college experience, not just how they view knowledge in the classroom. The ways in which students pursue career, educational, and personal decisions, learn to interact with others, and choose values to define themselves are all affected by the way they make meaning of their experience. Students at different Perry positions exhibit different needs in pursuing these tasks.

The conceptual applications focus on developmental matches between student needs and services offered. A developmental match means that a service provides sufficient support for students to accomplish the task at hand, but simultaneously provides moderate challenge to think in more complex ways. Thus, providing developmentally based services increases the effectiveness of the particular service and promotes student development at the same time.

Translating intellectual development theory to practice has most often been articulated in the context of the classroom. However, the variables used in this translation are also applicable to individual, small group, and community contexts that characterize student services work. The clearest statements about the differing needs of dualistic and relativistic students are contained in Widick and Simpson's (1978) developmental instruction model. They describe dualistic students as needing support in the form of high structure and personal encouragement, and challenge in the form of moderate diversity and concrete ex-

periences. Relativists on the other hand find low structure and personal encouragement supportive, and high diversity with a focus on making choices challenging. The applications described next are based on determining students' intellectual development levels, using Widick and Simpson's ideas to design services appropriate to these levels, and evaluating the outcome of the designs.

Conceptual Projects in Student Services

Individual Advising and Counseling

Rationale. Although numerous theoretical frameworks inform our individual guidance of students on personal, emotional, social, and educational concerns, the Perry scheme provides an additional opportunity to join students in their perception of concerns. Interpreting the concern as the student does often helps the advisor or counselor identify approaches or solutions that are workable for the student. Students with differing expectations of authority figures, levels of trust in their own personal judgment, and decision-making abilities warrant different responses from student services professionals.

Application. Although many individual helping sessions occur spontaneously, direct application of the Perry scheme is possible in those that are preplanned. For example, in most counseling and career guidance services, there is an opportunity to conduct an intake interview or have brief personal contact with the student prior to the individual session. The MER would be administered as part of the intake process in these services. The counselor/advisor would approach the individual session(s) with the student's Perry position in mind.

In the case of a dualistic student presenting a concern about what major to choose, for example, the counselor/advisor would offer structured opportunities to explore interests and information about the world of work. Computer programs or written guides to exploring of resources could be used in combination with personal assistance to provide encouragement. Experiential opportunities such as visiting professionals in fields of interest to do informational interviews would be included, along with an interview guide to structure this experience. Although exploration would be encouraged, the counselor/advisor would help the student identify a reasonable range of avenues to pursue rather than suggesting endless possibilities. Endless possibilities would represent too much challenge for a dualistic student and serve only to create greater frustration and inability to address the concern. Methods to process the information gathered would be provided in later sessions. These might include written decision-making tools or conversations in which the counselor/advisor helps the student work through the information. The counselor/advisor's presentation of his or her role throughout these interactions is equally important. For the dualistic student, the helper must be a good authority figure and yet avoid giving the student answers. The structure described here helps students accept the need to work through the concern together instead of the helper giving the answer or telling students to find it on their own.

For the relativistic student who presents the concern of choice of major, the approach just described would not be effective. The relativistic student is already aware of the infinite nature of possibilities for choice of major, career, or both. The concern is no longer finding the right major, but choosing one of the many the student would like to pursue. Exploration may still be needed, but could be done vicariously through activities such as

guided fantasy. The major focus of helping sessions would be to identify criteria for choosing a major. Consideration of personal circumstances, future goals, and the student's personal and professional identity would be topics of conversation in ascertaining these criteria. High personal encouragement would still be needed, probably in the form of empathy with the difficulty of narrowing one's options, but the interactions in sessions would not need the structure described for dualistic students. Relativistic students would benefit from freedom to operate within reasonable parameters to set the tone and direction of sessions.

Evaluation of Application. Effectiveness of counseling/advising would be measured by student perceptions, counselor perceptions, and perhaps the student's response to the concern (such as choosing a reasonable major or delaying choice appropriately). Effect of the application on intellectual development could be assessed with a second administration of the MER, provided the length of the counselor-client relationship was sufficient to show potential change. Individual intellectual growth would also be effected by experiences other than these helping sessions, but collective data on students using a counseling/advising service would assist in demonstrating the value of the service.

Contexts for Application. This application could be translated from a major or career decision to any personal decision a student requests assistance to resolve. These might include decisions about values, relationships with others, life styles, health, study habits, and time management. The application could also be used in individual interactions that occur in less structured settings such as residence halls. Conferences to address discipline issues or roommate difficulties could be improved by responding to the student's way of perceiving the situation. Acquiring the student's Perry position would be more difficult, but could be accomplished by asking the student to complete the MER to further the advisor's understanding of his or her perspective prior to such conferences.

Programmatic Efforts

Rationale. Programmatic efforts cover a wide range of functions including orienting students to campus and assisting them with adjusting to college life (both academic and social), becoming adults, dealing with personal issues and choices, and enhancing human relations skills. Understanding the way students view these areas is helpful in choosing topics appropriate to their stage of development. These efforts occur in a variety of formats ranging from 2- to 3-day events to short workshops or panel discussions. Irrespective of the format, the way topics are presented can determine the effectiveness of the program.

Application. Perhaps one of the most important programmatic efforts is new student orientation. Because this is the start of adjustment to college life, it is essential that it be effective in helping the student begin the college experience. In the past it was easier to orient new students because student groups were homogeneous. Currently new students represent diverse characteristics, particularly in light of the increasing numbers of nontraditional age students attending college. This diversity requires identification of how new students think about college in order to respond accordingly. Because most students register in advance for orientation programs, the MER could be a part of the registration process. Its inclusion would be accompanied by an explanation to the new student that college personnel are interested in their perspective to better aid them in taking advantage of the col-

lege environment. Orientation personnel would use MER scores to design program content and delivery to match student perspectives. In some cases dualistic and relativistic students might be addressed separately, particularly if this distinction is between students of traditional and nontraditional ages.

Dualistic students come to orientation expecting answers to questions about majors, course scheduling, housing arrangements, and social activities. In their search for the right classes, major, roommate, and social group they are often overwhelmed by an institution's display of endless possibilities in these areas. They need structure to consider possible majors, course options, and personal choices. Discussion of resources to aid in these decisions should be accompanied by written guidelines on how to use these resources. Individual or small group interaction is important to add the personal support needed at this time. Direct interaction with faculty advisors, residence hall staff, or student activities personnel helps demonstrate that personal resources exist to help with initial adjustment. Any direct experience with class scheduling or registration for other activities gives the new student concrete experience in learning how to function in the new environment. Relativistic students are more interested in hearing about the array of opportunities that exist on campus. Having lost their fear of finding the right major or social group, they wish to become acquainted with every possible avenue open to them. They still have the basic need to understand registration and advising systems, but need less detail than do dualistic students. Their questions are more likely to revolve around how to keep options open rather than how to make choices. They are more receptive to hearing from fellow students about succeeding in college than are their dualistic counterparts. The inclusion of group activities that build support groups provides effective personal support for relativistic students. Sharing of resources is still necessary, but relativistic students can be left to pursue resources on their own after receiving basic information.

Evaluation of Application. The success of orientation programs should be measured at their conclusions because so many other factors influence students' success in college. Certainly students in attendance could provide information about sessions they found most useful, concerns alleviated by the program, and concerns remaining despite orientation. A survey of new students at midsemester or midyear could request student feedback on the contribution of orientation to their initial adjustment to college. Most programmatic efforts are too short in duration to ascertain their impact on student development in ways other than students' own reports.

Contexts for Application. Just as in orientation programs, the delivery and content of most types of programming could be developmentally designed. Academic support programs on study skills, time management, and test taking could contain varying degrees of structure, experiential learning, diversity of methods, and personal support. Programming aimed at personal development such as values clarification, self-concept, communicating with others, relationship development, and acceptance of individual differences could be similarly designed to match the audience. Use of this application depends on the opportunity to assess student intellectual development and thus is more likely when the audience of the programming effort is known in advance.

Environmental Design

Rationale. On the basis of the person-environment literature it is safe to assume that students' satisfaction with their environment affects their success in college as well as their persistence. Even though the total college environment is beyond the influence of student services, the residence hall environment in which many students initially live is almost completely under the influence of student services personnel. According to Chickering's (1969) research, the living environment and peer culture have as much influence on student development as does the academic environment. Designing developmental environments would increase student satisfaction and possibly retention, and foster student development simultaneously.

Application. The assignment of students to residence halls is guided by numerous philosophies. Some systems separate freshmen and upperclass students, some integrate the two, and some operate strictly on student preferences. Systems in which assignments are made on some criteria other than student preference could use Perry position as one of the criteria, with the justification that students with common perspectives would support each other in their initial adjustment. Those that operate on student preference could assess Perry position after the assignment process to provide a profile of community groups. In both situations, MER scores could be obtained and used in designing community expectations and rules to match the makeup of the community.

Because community development is more effective in small rather than large communities, this application would most likely involve residence hall floors or small units. Communities consisting mainly of dualistic students would need high structure in building their community. For example, the resident advisor would provide information on rules that are nonnegotiable, and present a process for residents to develop other community rules. Response to violation of expectations could also be worked out, providing the advisor presented a few options and examples of how this could be done. Governance of the community would also be presented in terms of existing parameters, with structure provided for areas in which choice exists. Strict presentation of environmental rules without input often results in lack of investment in those rules and offers no opportunity for growth through community involvement. At the same time a loose-knit environment is not conducive to success for dualistic students.

Relativistic student communities often expect greater voice in managing their environment. This could explain why off-campus housing options are often seen as more independent settings to upperclass students. Retention in residence halls might be improved by acknowledging relativistic student needs in environmental management. These communities could be provided with the parameters, or expectations the institution holds constant, within which communities must operate. Within those parameters the community would make collective choices regarding expectations. A group of 20 students working for a consensus on visitation rules could find the experience extremely developmental, and expectations the group is committed to follow would be produced as well. Governance could be approached similarly, with student responsibility for handling community problems and decisions. This type of environment would help relativistic students prepare for adult roles and enhance their development. Staff members in this environment would assist the community in working through these processes and assist with effective decision making.

Both designs require a certain amount of flexibility on the part of residence hall and student services staff to afford students reasonable levels of responsibility. This is often perceived as risky and is in fact risky when no criteria exist for making such judgments. Stu-

dent maturity levels do provide such a criteria and would enable student services staff to place responsibility appropriately with students.

Evaluation of Application. Various environmental measures exist for collecting data on student satisfaction with their environment. In addition, most residence hall staffs maintain statistics on rule violations, interpersonal difficulties in the community, property damage and social/educational activities of the community. Collectively, these data would help judge the effectiveness of the environmental design. Retention rates over time would also address whether environmental conditions meet students needs.

Contexts for Application. Residential housing facilities are the most logical context for this type of application. Student involvement in the governance of student life, and to some extent academic life, could also foster increased commitment and growth even though such programs would be more difficult to design.

Student Leader Training and Advising

Rationale. Student leaders are often given responsibility for educational and social programming on campus. Training is necessary to teach them organizational skills, financial management, and responsible decision making in the activities they pursue. Autonomous functioning is preferred assuming decisions made by student leaders are appropriate. Recent liability issues underscore the need for wise decision making. Student leaders' intellectual development levels would affect how they view decisions with which they are faced and their decision-making processes. Therefore, effective training and advising should take into consideration the intellectual development of the leaders.

Application. Preservice training would be designed on the basis of MER scores acquired from student leaders before they assume positions. Training for dualistic students would be characterized by high structure, moderate diversity, experiential activities, and personal interaction. Rules regarding organizational functioning and the role of various leaders would be provided in handout form and explained. Guidance on how to run meetings, delegate responsibility, supervise activities, and make decisions would be handled similarly. Hypothetical situations would be used to give leaders a chance to practice these skills and discuss concerns. Personal support from advisors of the organization would be offered in these sessions as well as in follow-up interactions.

Relativistic student leaders would require a more loosely structured training environment. They could be assigned to read basic materials regarding rules governing functioning and responsibilities of leaders. Guidance on meeting facilitation, delegation of responsibility, supervision, and decision making would focus on possible courses of action and a discussion of advantages and disadvantages of each. Discussion of potential outcomes of various choices and their implications would be important to persuade leaders to think through a situation before acting.

The design of training would also take into account a mix of dualistic and relativistic students. Although the overall design would be directed at the majority of the group, personal attention to add structure or freedom as appropriate for individual students would be needed. Much of this would occur in follow-up advising with student leaders as they engage in their responsibilities. Advising should match students' intellectual developmental levels to provide the form of guidance best suited to them. This application should

result in more effective training and advising, which in turn would increase the effectiveness of student leaders.

Evaluation of Application. Because the major objective of this conceptual project is to increase the effectiveness of student leaders, the main outcome measure would focus on their effectiveness. This could be evaluated by students served, advisors, and self-report perceptions. Advisors would be in a position to judge strengths and weaknesses of leaders' performance at the end of the academic year. These data would help judge the effectiveness of the training models implemented. In addition the MER could be used as an outcomes measure to determine if functioning as a student leader contributed to intellectual maturity. If documenting the benefits of involvement in student leadership is important, comparison to students who are not in such positions would be necessary to demonstrate that the benefits were from leadership experience rather than college in general.

Contexts for Application. This project could be implemented with leaders in student government (both campus-wide and residential), judicial student groups, student activities organizations, and programming boards.

Paraprofessional Staff Training and Supervision

Rationale. The decisions required of paraprofessional staff in personal advising of students, mediating conflicts, handling disciplinary situations, supervising activities, and responding to crisis situations necessitate effective performance. The degree to which paraprofessional staff members are able to effectively manage these responsibilities is mediated by their overall maturity, a portion of which is intellectual development. The degree to which they use good judgment depends on their ability to process information and their view on how to determine a wise course of action. Training and supervising staff in a manner consistent with their intellectual development would help them function more effectively and possibly contribute to their personal development.

Application. Paraprofessional staff members are generally selected in the spring preceding their actual appointment to positions. The MER could be administered at that time to allow training personnel adequate time to analyze the data, plan training experiences, and discuss supervision models with supervisory personnel. Training experiences take numerous forms, including concentrated preservice experiences, structured courses, and in-service workshops. Dualistic, relativistic, and mixed designs could be developed in all formats to match various staff group profiles. Widick and Simpson's (1978) developmental instructional model translates easily to these training formats. Dualistic designs would be characterized by high structure, experiential learning, moderate diversity, and personal support. Guidelines for various situations would be provided in handout or manual form and thoroughly discussed. Practice through role plays would help dualistic staff members experience situations that do not always fit the rules and teach them to adjust accordingly. Staff would be encouraged to consult supervisors when uncertain about a course of action without being made to feel inadequate. Training would include practice in how to decide on a course of action in various situations.

Training for relativistic students would be less concrete, allowing more freedom to explore issues encountered in their responsibilities. Extensive discussion of outcomes of various courses of action would occur, along with sharing of ideas on how to resolve

various situations. Emphasis on criteria for good decisions and evaluating situations would be central to the training model. Personal support would be emphasized to encourage consultation in difficult situations. In the case of a mix of dualistic and relativistic staff members, some separate sessions or those with moderate structure would be utilized. Training would be geared toward the majority of the group and supplemented with individual supervision to address individual needs.

Effective supervision of staff is an essential follow-up to training experiences. Individual supervision facilitates tailoring guidance to individual needs. Degrees of structure, diversity, and personalism in supervisory interactions and activities would be determined on the basis of intellectual development levels. Ricci, Piper, and Porterfield (1987) provide an excellent translation of the needs of dualists and relativists in supervision.

Evaluation of Application. Evaluation of staff members' performance would be the central outcomes measure in this application. Evaluations completed by supervisors, the staff member, and students served would collectively provide an assessment of performance. The supervisor would be in the best position to judge the staff members' ability to make responsible decisions and to notice any improvement in that skill over the academic year. Staff member evaluations of the training and supervision received would indicate whether they found the developmental design beneficial. A posttest MER score could also determine whether intellectual maturity increased, providing valuable information for continuing training and supervision of returning staff members. Provided comparisons with nonstaff members were available, evidence for the contribution of a student staff position to students' intellectual maturity could also result.

Contexts for Application. Paraprofessional staff training contexts in which this project would be applicable include residence hall staff, student security staff, peer advisors who assist with academic difficulties, peer tutors, peer assistants in counseling or career planning offices, and students employed in summer conference or orientation functions.

Implementing these or similar projects could enhance student services, provide means of evaluating services, and demonstrate the utility of those services. This information would be valuable in making decisions about the manner in which services are provided, staffing, and direction for overall student services. Projects of this nature are essential for student services professionals to assume a central role in students' development.

Conceptual Projects in Academic Settings

It is equally important that student services professionals work collaboratively with academic colleagues to enhance the total college experience. Numerous applications discussed in chapters 2 and 5 have addressed the use of MER data in course design and instructional methods. Sufficient evidence exists to suggest that teaching effectiveness can be enhanced by developmental instruction. Applying developmental data in interaction between instructor and student, and considering students' intellectual development beyond the context of individual courses in academic advising and curriculum design have received less attention. Applications in these areas could enhance the effectiveness of the academic experience and promote development.

Faculty-Student Relationships

The course designs discussed in chapters 2 and 5 discuss how to structure learning tasks and class activities to match dualistic or relativistic perspectives. Most developmental instruction projects, including the original description of Widick and Simpson (1978), suggested the same interpersonal environment for both dualistic and relativistic students. Analysis of MER data for over 1,000 students revealed that student expectations of interaction with the instructor change with developmental level (Baxter Magolda, 1987b). Changes were evident in three dimensions, including the general atmosphere of learning, the personal nature of the faculty-student relationship, and respect between instructor and student. The general atmosphere dimension progressed from basic friendliness of the teacher, which created a less intimidating environment (Position Two), through a congenial setting acknowledging individual needs (Position Three), to an open atmosphere characterized by freedom to explore (Position Four), culminating in a mutual process of critical exploration to reach understanding (Position Five). The personal relationship dimension began similarly with the teachers' interest in students (Position Two), moving to a genuine caring for students that fostered an understanding relationship (Position Three), increasing in closeness but allowing the student to function independently (Position Four), and finally arriving at a close relationship that no longer threatens the student's independence (Position Five). The definition of mutual respect progressed similarly across Perry positions. Students initially referred to it as teachers not intimidating students (Position Two), then exchanging information (Position Three), next to learning from each other as equals (Position Four), and lastly as a mutual regard for each others' contributions to the learning process (Position Five). Consideration of this affective dimension of learning would add an important component to the developmental instruction model and provide faculty with an increased awareness of how students perceive their interactions.

Academic Advising

Increased faculty awareness of students' needs and expectations regarding learning and relationships could greatly enhance the advising relationship. Dualistic students approach faculty advisors looking for the right courses, the right instructors, and answers to how to organize their academic program. Because faculty view these issues as the student's decision, they offer options and advice but are frustrated when students hesitate to explore the options. Students are equally frustrated if they perceive the advisor is withholding the right choice. Understanding of dualistic student needs would help faculty teach students how to explore options and make their own decisions. Providing information on a few options and giving suggestions for exploring them would give the dualistic student the structure necessary to choose a course or a major. Subsequent discussion between advisor and student would focus on helping the student process the information gathered. Many of the suggestions included in the individual counseling/advising example would apply here. Relativistic students on the other hand require less guidance in exploring options and more pressure to make choices. Faculty ability to identify which type of perspective an advisee holds would help gauge advising roles more effectively.

Curriculum Design

The basic notions that apply in individual course design also apply to curriculum design. The series of courses in a curriculum would begin with the needs of entering students and

attempt to change with them through the course of their studies. First-year courses would be more structured, introduce only moderate diversity in the knowledge base, contain extensive experiential learning, and be organized in ways that promote faculty-student interaction to provide a personal atmosphere. Large lecture sessions, which often dominate early portions of the curriculum, might be replaced with smaller, more interactive formats. As the curriculum progresses and students become more complex, structure would decrease and greater diversity related to the knowledge base would be introduced. The focus would shift from students' learning and understanding the foundations to their applying the knowledge base and discovering the uncertainties inherent in it. Advanced courses would focus on how to think through these uncertainties, critically evaluate knowledge, generate new insights, and use knowledge wisely in various contexts. The type of critical thinking that is usually the end goal of educational programs would be a more likely outcome of this progression as it matches students' increasing ability to think critically.

Evaluation

Accountability is one of the key words in postsecondary education today. Its importance is increased for student services professionals in a time of competition for resources within the higher education community. The question of whether student services is central or secondary to the mission of higher education takes on additional importance in this environment. Supportive research has emerged from many directions to argue that the "extracurriculum" is essential to foster maturity. However, it remains the responsibility of student services personnel to demonstrate the value of particular services by providing tangible evidence of their impact. The MER provides one avenue for accomplishing this difficult task. An equally important and related key word is quality. Outcomes measures provide data to identify ineffective services and in turn suggest how to improve services to achieve goals.

Projects using the MER as an outcomes measure, reported in chapter 5, demonstrated the value of the MER in intellectual development and broader developmental contexts. In programs or services in which the goal is fostering intellectual development, the MER serves as a direct measure of success in reaching this goal. It is important that pretest-posttest administrations and comparison groups be used when the need is present to attribute increased complexity directly to the program or service in question. When the goal of a program or service is related to broader development, such as in human relations training, skill development, and personal exploration, other appropriate measures of effectiveness are necessary. However, the MER may be used to provide evidence that these experiences are also central to intellectual maturity. Providing evidence that student staff training, involvement in campus activities, or student services programming increases intellectual complexity would support the continuance of such programs and justify their resource allocation.

Using the MER as an outcomes measure of various environments could also contribute to quality and accountability. Study of various learning environments, including liberal arts versus specialized programs, community colleges, 4-year institutions, and continuing education contexts, is necessary to determine the impact of various environmental variables on intellectual development. Exploring of the student services components of these environments would add essential insight into services that contribute to increasing intellectual maturity. These insights would guide judgments of services and help student ser-

vices professionals revise services. The same holds true for academic components of the environment. The ability to measure outcomes of both specific learning experiences and the overall college experience provides academic and student services personnel with essential data upon which to design effective learning environments to reach their mutual goals.

Conclusion

The MER represents an advance in assessment because of its accuracy and practicality in measuring students' intellectual development. The projects in chapter 5 illustrate the MER's contribution to linking theory and practice in student services and academic contexts. The discussion in this chapter demonstrates the contribution of the MER to theory refinement, assessment, application, and evaluation. The promise of the MER for linking theory and practice is increased by the practicality of rater training. Successful rater training is possible through a self-study workbook format presented in part two of the book. The complete rater training package is offered in this book to provide practical and accurate assessment to practitioners and researchers interested in using theory in practice.

CHAPTER SEVEN

A RATER TRAINING PROGRAM FOR ASSESSING INTELLECTUAL DEVELOPMENT

The central purpose of the development of the Measure of Epistemological Reflection (MER) was to increase specificity and precision in the assessment of intellectual development on the Perry scheme. Increased specificity and precision were expected to facilitate use of the rating process by requiring less extensive training than did other available intellectual development assessment techniques. The potential increase in practicality would in turn enable the application of theory in practice. The studies reported in this chapter describe rater training efforts that culminated in the rater training program in chapters 8 - 14.

Research in other developmental areas provided evidence that rater training through a written manual could be effective for production task instruments. Loevinger and Wessler's (1970) Sentence Completion Test to measure ego development was accompanied by a manual practitioners could learn to use through self-training. The stimuli, however, were very general, making the rating process a difficult one. Gibbs and Widaman's (1982) Sociomoral Reflection Measure (SRM), used to measure Kohlberg's scheme, standardized the stimuli to produce ratable data and standardized rating criteria to reduce rater error. The SRM is accompanied by a standardized rating manual that practitioners can use to become certified raters through self-study. Because the MER followed the SRM format, exploration of rater training through self-study was incorporated into the study of the MER starting with the initial validation study.

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Initial Exploration of Rater Training

The increased standardization of the MER made it possible to explore various formats for training practitioners to use the rating process. Initial exploration of rater training was incorporated into the original validation of the MER (Taylor, 1983). Three self-trained raters, including one expert with extensive experience with the Perry scheme, studied the Revised Rating Manual independently prior to rating protocols. Their ratings were compared to those of two expert raters involved in the construction of the manual. The two expert raters discussed discrepancies in their own ratings to arrive at a compromise rating to be used for comparison.

The self-trained expert achieved 63% exact agreement ($\chi^2 = 174.05$, df = 1, N = 155, $p < .001$; T = .53) with the experts on total protocol ratings (the overall score for an instrument). Correlation of the self-trained expert's ratings with those of the experts was .84 ($p < .0001$). The two self-trained raters achieved 65% ($\chi^2 = 87.4$, df = 1, N = 71, $p < .001$; T = .56) and 44% ($\chi^2 = 23.9$, df = 1, N = 71, $p < .001$; T = .30) exact agreement with the expert raters. Their correlations with the expert raters were .80 ($p < .0001$) and .67 ($p < .0001$). These preliminary data supported the assumption that the increased specificity of the rating process made accurate rating possible without extensive training.

Rater Training Phase I: The Seminar Format

Design

To determine the extent of training needed to accurately rate the MER, a rater-training seminar was conducted in spring 1983. The seminar format was selected to enable the trainer to observe trainee progress and potential difficulties inherent in learning the rating process. Eight graduate students participated in the 10-week three-credit course. The first three class sessions addressed assessment issues in cognitive development, the construction of the MER, and rating instructions. Participants rated protocols outside of class during the remaining sessions. Class time was devoted to discussion of ratings and feedback from the expert raters. Participants rated 24 complete protocols during the last two sessions, which they discussed in an all-day retreat.

Results

The trainer determined success in rating by comparing the trainees and expert raters' ratings in three ways. First, the percentage of exact agreement on total protocol ratings (TPRs) was calculated. This served as the most stringent test of interrater reliability because it required nearly all six domain ratings to be identical in order to arrive at the same TPR. Second, percentage agreement within one position was considered to determine the degree of discrepancy of nonidentical ratings. Both levels of agreement were tested for significance using a nonparametric chi-square test followed by calculation of T as appropriate (Lawlis & Lu, 1972). Finally, an intraclass correlation coefficient (Tinsley & Weiss, 1975) was used to determine overall interrater reliability on TPRs. Table 15 shows interrater agreement and reliability for the eight trainees. The percentage agreement and correlations for each rater with the expert raters were generally higher than in the preliminary data of the original study.

Table 15

Percentage Agreement and Correlations of Seminar Raters' and Expert Total Protocol Ratings

Raters	Percentage Agreement					Intraclass Correlations		
	Exact	χ^2	T	Within One	χ^2	T	R	p
1	70	36.92	.64	96	18.58	.91	.92	.0001
2	63	25.56	.53	100	21.61	1.00	.72	.0001
3	67	30.98	.58	100	21.61	1.00	.89	.0001
4	58	16.67	.48	91	15.24	.83	.59	.0009
5	70	33.52	.62	100	21.99	.92	.84	.0001
6	58	16.67	.48	100	21.61	1.00	.79	.0001
7	58	16.67	.48	91	15.24	.83	.65	.0002
8	70	36.92	.64	95	18.58	.91	.78	.0001

For all chi-square values df = 1, n = 24, $p < .001$.

Discussion

The preliminary and seminar data together indicated achievement of acceptable inter-rater reliability through both independent and group study approaches, with the group study format seemingly slightly more effective. Insights from observation of the seminar and feedback provided by participants suggested that much of the training provided through class sessions might be offered in a written format to yield a more flexible training program. An attempt to improve the preliminary independent study format by adding material utilized in the seminar resulted in Phase II.

Rater Training Phase II: Independent Study Format

Design

Although the group study format seemed successful, the need remained for practical training that did not require class attendance. The authors of the MER implemented a rater-training program based on the independent study format to further identify the components necessary for successful and practical rater training. In July 1984, 21 volunteers began the training program, which was conducted by mail. The group included 11 women and 10 men ranging in age from 24 to 57. Eight held doctorates, four were PhD candidates, seven more held master's degrees, and the remaining two were graduate students. The majority of the raters were employed full time during the study.

Raters' knowledge of the Perry scheme, measured by a brief self-report familiarity survey, ranged from 8 to 20 on a 20-point scale. Five raters had previously participated in training for similar instruments, including the KneWi and the Reflective Judgment Interview (Kitchener & King, 1981).

Raters completed the MER before receiving their training materials. Assessing rater developmental level was included to determine whether it affected the ability to accurately interpret data. All participants were assessed at Perry Position Five on the MER.

Before rating protocols, each rater read an overview of the Perry scheme and a paper explaining the construction of the MER. These materials were intended to address topics previously included in the seminar training program. Raters were asked to study and become familiar with the manual prior to rating, a task also included in the seminar format. Raters were instructed to rate all of the protocols for each content area before proceeding to the next content area. Raters were given 6 weeks to complete 40 entire protocols representing a range of Perry positions. Trainees were offered certification if they achieved a .80 correlation with the expert raters.

Results

Of the 21 participants, 12 completed the training program. The rating period was extended to 14 weeks at the request of the participants, only four of whom finished in the 6-week period. The remaining nine participants did not complete the training because of time constraints. These nine did not differ significantly in terms of age, education, or degree of familiarity with the Perry scheme from the group that finished. Results of the twelve rater trainees are shown in Table 16.

Exact agreement on TPRs ranged from 15% to 64%, with three raters achieving 60% or above exact agreement. T values for those agreements greater than chance ranged from .22 to .56. Agreement within one position ranged from 83% to 100%, with only two raters below 90%. T values ranged from .64 to 1.00 respectively. Four raters achieved correlations in the .50s, seven in the .60s, and only one substantially lower with a .29. No rater reached the .80 defined as the goal for certification. For the seven raters who achieved correlations above .60, Perry familiarity scores ranged from 10 to 20 with a mean of 14.8. Similarly, those achieving correlations under .60 had Perry familiarity scores of 8 to 16 with a mean of 12. The four raters with correlations of .69, .64, .62, and .60 had rated the KneWi or Reflective Judgment Interview previously. Raters with correlations of .68, .63, and .61 reported no previous experience.

Discussion

Exact agreement on TPRs seemed to be consistently lower than agreement evidenced in the seminar format. The degree of agreement within one position suggested that fine distinctions between positions were difficult even though the general area of the scheme was rated accurately. The correlations indicated that the training offered through the independent study format was inadequate to achieve high levels of interrater reliability. Familiarity with the Perry scheme and previous rating experience seemed to have little influence on ability to accurately rate the MER.

Discussion with the trainees after the study revealed that they perceived lack of feedback as the major source of difficulty. Many felt that a feedback mechanism to check progress would have helped guide their rating and increase their understanding of the

Table 16

Percentage Agreement and Correlation of Independent Study Raters' and Expert Total Protocol Ratings

Raters	Percentage Agreement					Intraclass Correlations		
	Exact	χ^2	T	Within One	χ^2	T	R	p
1	60	38.54	.50	98	33.27	.95	.60	.0001
2	38	7.04*	.22	93	26.38	.84	.29	.03
3	15	NA	NA	90	23.23	.79	.63	.0001
4	42	11.85	.28	93	26.38	.84	.50	.0004
5	45	14.73	.31	95	29.73	.90	.54	.0001
6	50	21.41	.38	100	20.21	1.00	.68	.0001
7	43	11.85	.28	83	14.98	.64	.69	.0001
8	58	33.78	.47	95	29.72	.90	.62	.0001
9	63	48.97	.56	95	29.72	.90	.64	.0001
10	58	33.79	.47	95	29.72	.90	.61	.0001
11	43	11.85	.28	85	17.53	.69	.50	.0003
12	64	45.79	.55	90	22.34	.79	.54	.0001

For chi-square values df = 1, N = 40, $p < .001$.
*For chi-square value df = 1, N = 40, $p < .01$.

manual. Raters noted that because each new domain of the manual clarified understanding of other domains, working through all six before rating for certification would increase accuracy. This reaction seemed consistent with the seminar experience in which trainees discussed ratings, received feedback, and practiced all six domains prior to rating the final protocols. Thus, it seemed that failure to incorporate the interactive dimension of the seminar format in the independent study format omitted a significant component necessary for effective training. Further investigation of this component occurred in Phase III.

Rater Training Phase III: Exploration of a Feedback Component

Design

Suggestions from Phase II raters were incorporated in a third phase of the rater-training program, which involved six of the seven raters with correlations of .60 and above (see Table 16). Because these raters had devoted time to learning to rate with moderate success, it seemed logical to continue working with them to determine if an interactive dimension to provide feedback would assist them in achieving certification.

These six raters received a computer printout of their ratings for the original 40 protocols, which also contained the expert ratings (of the MER authors) for each protocol. In addition, a list of commonly missed items from those protocols was included, accompanied with a note of explanation for each rating. These items were provided to help the trainees clarify misunderstandings. A manual supplement was developed to clarify distinctions between positions for each of the six content areas. This supplement was aimed at pointing out fine distinctions between similar justifications in the manual to increase the likelihood of exact agreement instead of agreement within one position. The six raters were asked to review the feedback items and compare their ratings with those of the experts on the original 40 protocols. After studying the manual supplement they were asked to rate a new set of 20 protocols.

Results

Three of the six raters in Phase III completed that phase. The first rater achieved 55% exact agreement on total protocol ratings ($\chi^2 = 14.08$, df = 1, N = 20, $p < .001$; T = .44) and 100% agreement within one position ($\chi^2 = 18.58$, df = 1, N = 20, $p < .001$; T = 1.00). The same rater's intraclass correlation was .78 ($F(19, 20) = 7.89$, $p < .0001$). The second rater achieved 60% exact agreement on TPRs ($\chi^2 = 18.57$, df = 1, N = 20, $p < .001$; T = .50) and 95% agreement within one position ($\chi^2 = 14.94$, df = 1, N = 20, $p < .001$; T = .90). The second rater's intraclass correlation was .79 ($F(19, 20) = 8.45$, $p < .0001$). The third rater's exact agreement on TPRs was 75% ($\chi^2 = 35.83$, df = 1, N = 20, $p < .001$; T = .69) and 100% agreement within one position ($\chi^2 = 18.59$, df = 1, N = 20, $p < .001$; T = 1.00). This rater's intraclass correlation was .88 ($F(19, 20) = 15.62$, $p < .0001$). The remaining three raters were unable to make a commitment to complete this phase.

Discussion

The results of Phase III revealed substantial increases in both exact percentage agreements and interrater reliability. The first rater's correlation increased from .60 in Phase II to .78 in Phase III, despite a slight decrease in exact agreement from 60% to 55%. The second rater's correlation changed similarly, from .63 in Phase II to .79 in Phase III. This rater's most marked improvement, however, was in the area of exact agreement, which rose from 15% to 60%. The third rater's correlation improved from .64 in Phase II to .88 in Phase III, accompanied by an increase from 63% to 75% exact agreement. Raters reported that the manual supplement clarified distinctions among positions, and that awareness of previous errors assisted in avoiding similar mistakes in the next 20 protocols.

The results clearly indicated that these measures increased accuracy for these raters, and that an independent study format could result in high interrater agreement and reliability.

Although the results of this phase were very encouraging, the small number of raters completing the training hindered conclusions about effectiveness of the training package. Concern regarding time involved in training also remained. Phase III raters indicated that 20 protocols seemed more manageable than the original 40. They reported spending an average of 10 hours rating the 20 protocols after having studied their previous ratings and feedback. On the basis of this information it seemed that the actual time involved in rating was not excessive. Lack of completion was accounted for by time constraints, a doubt in one's progress because of lack of feedback, and spending excessive time on a protocol because of lack of guidance. These insights and the progress demonstrated in Phase III resulted in a fourth phase of the rater-training project.

Rater Training Phase IV: The Workbook Format

Design

The rater-training packet developed for this phase incorporated the feedback mechanism noted as helpful to raters in Phase III, resulting in a "workbook" format. The packet included a paper describing the construction of the MER, references for reading materials on the Perry scheme, practice protocols accompanied by expert ratings, and a manual including the supplement for distinctions among positions for each domain. Trainees were asked to read the reference materials, paper, and manual before beginning to rate. The rating process involved rating 15 practice protocols for each of the six domains addressed by the MER. Expert ratings (of the MER authors) along with explanatory notes were provided on a separate page to allow participants to check the ratings throughout the rating process. Participants could thus practice until they felt sure of the distinctions across positions in each domain. Upon completion of the practice phase, the trainee received a packet containing 20 complete protocols without expert ratings. Certification was obtained by submitting the ratings for these 20 protocols for comparison with the experts' ratings.

Eleven individuals completed the workbook training program. There were five men and six women. Seven were full-time practitioners and four were graduate students.

Results

Percentage agreement for identical total protocol ratings, agreement within one position, and intraclass correlations for the eleven raters in this phase are shown in Table 17. Exact agreement was moderate in four cases (45%, 55%, 60%, and 65%) and high in seven (70%, 70%, 75%, 80%, 85%, 85%, and 95%). All agreements were beyond that expected by chance with T values ranging from .31 to .94. Within-one-position agreement was consistently high, with only two cases (both at 95%) below 100%. Intraclass correlations were consistently high, ranging from .78 to .97, and significant ($p < .0001$).

Discussion

Both interrater agreement and interrater reliability increased more in this phase than in the previous phase, indicating that the practice and feedback components are essential to a self-study format. The levels of agreement were similar to or slightly higher than those

Table 17

Percentage Agreement and Correlations of Workbook Format Raters' and Expert Total Protocol Ratings

Raters	Percentage Agreement				Intraclass Correlations			
	Exact	χ^2	T	Within One	χ^2	T	R	p
1	80	42.83	.75	100	18.59	1.00	.92	.0001
2	70	29.45	.63	100	18.59	1.00	.89	.0001
3	45	6.95*	.31	95	14.94	.90	.79	.0001
4	95	67.58	.94	100	18.58	1.00	.97	.0001
5	70	29.45	.63	100	18.59	1.00	.89	.0001
6	55	14.08	.44	95	14.94	.90	.78	.0001
7	65	23.70	.56	100	18.58	1.00	.91	.0001
8	60	18.57	.50	100	18.58	1.00	.83	.0001
9	85	50.45	.81	100	18.58	1.00	.96	.0001
10	85	50.45	.81	100	18.58	1.00	.95	.0001
11	75	35.83	.69	100	18.58	1.00	.84	.0001

For all chi-square values df = 1, N = 20, $p < .001$.
*For chi-square value df = 1, N = 20, $p < .01$.

in the seminar phase. Similarly, correlations were equal to or above those achieved by raters in the seminar phase. The consistent high correlations achieved in the workbook phase indicate that the workbook format is as effective, if not more effective, than the seminar format. Whereas the seminar format allowed for verbal discussion of misunderstandings, the workbook phase accommodated this need through the materials provided. Apparently the opportunity to compare ratings to expert ratings during the rating process was as effective as discussing differences at a later time. In addition, the workbook format seemed reasonable in time required. Although raters' practice time varied, they reported an average of 10 hours on the 20 protocols. Thus, the workbook phase seemed to meet the goal of training raters to achieve a high degree of accuracy in a practical format.

Conclusions

The collective results indicate that the standardization of the MER rating process facilitates successful rater training. The major contribution of these studies is in showing that the workbook format yields accuracy equal to that of the seminar approach. This represents a breakthrough in the practicality of training raters because sufficient guidance and feedback in written training materials can be substituted for face-to-face training options. The remaining chapters of part two offer the complete workbook training program. The availability of a self-study training program allows broader participation in training and entails less expense for trainers and raters.

Although the number of participants reported here is small, the consistent success of those using the workbook format supports the training process offered in the remaining chapters. Chapter 8 contains general instructions for the rating process and suggestions for learning the MER rating manual. Chapters 9 - 14 contain the rating manuals and practice protocols for each of the six domains addressed by the MER. Expert ratings are included in the appendices to provide readers guidance during training. The self-study nature of the training program allows trainees to work at their own pace and apply for certification when they feel prepared. Certification requires rating 20 protocols, which are available from the authors. Information on rater certification and how to obtain permission for using the MER is given in the appendices. Readers are encouraged to engage in the training process to augment assessment skills needed in linking theory and practice.

The time needed to learn the rating process is reasonable given the nature of the task. However, some practitioners may not have sufficient time to engage in the training. Given the central role of assessment in linking theory and practice, student services divisions should encourage this type of professional development activity. Student services divisions that are serious about assessment could designate rater training as a job responsibility or award release time for training. Professional development seminars devoted to rater training would enhance understanding and maintain motivation to complete the training by allowing small group collaboration. In some cases individual job responsibilities could include rater certification and scoring data for assessment projects. Positions with flexibility in job responsibilities, such as graduate assistantships, are one area in which this option could be implemented. The central part assessment plays in linking theory to practice requires that all creative avenues to increase researchers' and practitioners' opportunities to enhance assessment skills be explored.

CHAPTER EIGHT

GENERAL INSTRUCTIONS FOR RATING THE MEASURE OF EPISTEMOLOGICAL REFLECTION

This chapter discusses essential fundamental concepts, assumptions, and premises upon which the Measure of Epistemological Reflection (MER) rating process is based. These concepts include the unit of analysis for the rating process, how the unit is identified in a protocol, the use of modal versus highest reasoning, and the degree of inference acceptable in the rating process. The organization of the manual is described, and suggestions on how to become familiar with the manual are provided to make learning the rating process easier. Specific steps in the rating process are outlined and suggestions to address potential difficulties that raters may encounter are given. Scoring rules for arriving at total protocol ratings are also included.

Fundamental Concepts

Reasoning Structure

The MER is constructed on the premise that cognitive development is represented by the justification of one's thinking as opposed to the content of one's thinking. Each series of questions attempts to directly elicit the respondent's reasoning for the particular stance she or he adopts. It is this reasoning that serves as the basis for rating, or assigning a Perry position to the response. This premise is central to accurate MER rating if misinterpretation of a respondent's developmental level on the basis of content of thinking is to be avoided.

For example, two respondents may suggest that they chose to enter graduate school rather than join the work force. However, one explains the decision in terms of all options being equal and the option chosen being as convenient as any (Perry Position Four), whereas the other explains the decision in terms of this choice being best because of supporting evidence (Perry Position Five). Similarly, two respondents may indicate that they

like a lot of class participation in the learning experience. One explains liking it because questions one has but is afraid to ask are asked by others and are subsequently answered by the teacher (Perry Position Two), whereas the other explains that hearing others' perspectives expands the possible ways of looking at the topic (Perry Position Four). These examples clearly indicate that Perry position is not necessarily distinguished by content of response, but rather by the justification offered to explain it.

Respondents' explanation or justification for their thinking is referred to as the reasoning structure. This structure may include ideas, opinions, statements, or detailed evidence to support the stance the respondent takes. Information that explains or provides reasons for or against a preference or idea constitutes the justification of the respondent's thinking. The term reasoning structure is used to indicate that a certain consistency exists in one's reasoning from a particular developmental level. Thus, most of the material that constitutes justification in the response should have a theme that represents a developmental level. (These themes are outlined in the rating manual under each position for each domain.) The task of rating a domain protocol involves identifying the reasoning structures in the protocol and matching them to those outlined in the rating manual in order to choose an appropriate Perry position for the response.

It is important to note that a response may contain more than one reasoning structure. Reasoning structures in the rating manual, although numbered, are not hierarchical but rather different versions of the same level of thinking. Thus any number of reasoning structures may be chosen as matching the response being analyzed. In some cases a response may contain reasoning structures representative of more than one position. This circumstance requires discussion of a second major concept involved in MER data analysis.

Modal Reasoning

The MER rating process uses modal reasoning rather than highest reasoning evidenced to judge Perry position. Because of the indepth coverage of this issue in chapter 3, the discussion here will be limited to how the choice of approach affects the rating of domain responses. As noted previously the authors of the MER assume that a respondent's thinking within a domain is best characterized by the modal reasoning structure, or that which seems to constitute the majority of the person's thinking. If a higher or lower reasoning structure appears along with majority reasoning structures, this is viewed as evidence that some thinking remains at an earlier level or some is beginning to represent a later level in this particular domain. However, the major portion of the person's thinking is still represented by the modal reasoning structure. Because the domain rating is one sixth of the total protocol rating, the existence of earlier or later thinking in other domains is still accounted for in the ratings for those domains. Thus, if the highest reasoning evidenced in one domain is truly modal in another domain, this will emerge in the rating for that domain. The total protocol rating is a summary of the six domain ratings and thus accounts for modal and transitional reasoning. It then provides a more complete picture of the person's overall developmental profile.

This perspective results in using the modal reasoning structure in each domain to determine the appropriate Perry position for that domain. The rater identifies the reasoning structure(s) in the domain protocol, determines which structure(s) represent the majority of the person's thinking, and assigns the Perry position from the manual on the basis of which reasoning structures best match the response. Scoring rules (explained in more

detail later in this chapter) do allow for transition within a domain if modal thinking does not seem to be present.

Degree of Inference

A third concept central to rating is the degree of inference that is acceptable in the rating process. Although some respondents articulate their reasoning very clearly, making it easy to identify the reasoning structure, others articulate their thinking in a fashion that allows for multiple interpretations. In these latter cases the rater must infer the true meaning intended by the respondent. The degree of inference acceptable in MER rating is that suggested by Loevinger and Wessler (1970) in their assessment work in the area of ego development. They suggested that guessing the respondents' meanings was acceptable as long as the respondents would recognize the interpretation as representative of their meaning. In other words, Loevinger and Wessler cautioned against inferring very far beyond what the respondent offered. Translation of this perspective to MER rating means that the rater's task is to read the response, try to understand how various parts of the response fit together and enlighten each other, and come to an understanding of the respondent's point without inserting his or her own ideas into the response. Helpful hints regarding how to clarify understanding of a respondent's point are discussed in a later section on specific steps in the rating process. Responses that remain unclear after attempts at interpretation are noted as unratable.

Organization of the Manual

The MER rating manual consists of six smaller manuals, one for each of the six domains addressed by the MER. Thus, separate manuals exist for decision making, the role of the learner, the role of the instructor, the role of peers, evaluation, and the nature of knowledge. This separation of domain content areas allows for more specific treatment of the thinking represented by each Perry position in that content area. Provision of reasoning structures used directly with the content of each domain eliminates the necessity for the rater to interpret how reasoning about one content area may translate into another, as this is already done by the manual. The organization of the manual by domains also facilitates rating by providing the rater with a smaller volume of material with which to compare the response.

Each domain manual begins with a brief definition of the content of the domain. An overview of the domain content area follows. The overview outlines the major reasoning for Perry Positions One through Five for that domain. Major factors useful in distinguishing Perry positions are also noted along with finer distinctions that are often misinterpreted. This overview is provided to give the rater an overall sense of the pattern of thinking and how it changes over Perry positions for this content area.

Following the overview, the manual begins to detail thinking about each content area across the Perry scheme. First, general category descriptions are given for dualism, transition, and relativism. As noted earlier, dualism is used to refer to Positions One and Two of the scheme, transition for Positions Three and Four, and relativism for Position Five. The description under the general category of Dualism presents the frame of reference of a person operating from the first two positions of the Perry scheme. This general description sets the tone for the more specific descriptions that follow for each of the first two positions. Thus, by reading the general category description the rater can see what com-

monalities exist in the thinking of persons in the first two positions. The specific position descriptions for each position then clarify the distinctions between the two. Each position description is then expanded upon by the reasoning structures detailed for each position. Reasoning structures appear in varying numbers under each position because only those evidenced in the empirical verification process are included. Reasoning structures indicate the likely justifications a person in the position in question would use to explain his or her thinking. Examples excerpted from MER data serve to further clarify the meaning of reasoning structures. Once reasoning structures and examples are outlined for each position, the manual returns to the next general category and the process is repeated until all five positions have been explained.

The overview, the general category descriptions, and the position descriptions are intended to assist the rater in locating the area of the scheme relevant to the response being analyzed. The rater then compares the reasoning structures to the actual response. The examples are not necessarily matched to the response but serve to help the rater gain a clear understanding of the meaning of the reasoning structure.

The reader will note that the reasoning structures in the manual are preceded by a series of numbers. This series of numbers identifies the domain, the Perry position, and the number of that particular reasoning structure. For example, reasoning structure 1.3.1 represents domain one, Perry Position Three, and reasoning structure number one. All reasoning structures within a position are of equal value and are not arranged in hierarchical order. The third digit of the number is assigned only to distinguish one reasoning structure from another.

Learning the Manual

Raters should be familiar with Positions One through Five of the Perry scheme before attempting to learn to rate MER data. Once an understanding of the basic scheme is achieved, gaining the specific understanding needed for rating can begin. Because the manual as a whole details similar thinking patterns for each domain, it is suggested that the rater trainee begin by reading the entire manual. This reading should provide the trainee with a general sense of the pattern of thinking as it progresses from simple to complex. Following this overview, study of the manual of each individual domain is necessary.

Reading the overview for a domain sets the stage for the particular pattern of changes in thinking in that content area. It gives the reader a basic idea of the concepts to be elaborated upon in that section of the manual. The next few steps assist the reader in gradually comprehending the increasing levels of specificity the manual contains. By reading the general category descriptions for dualism, transition, and relativism the reader sees the distinctions between the three broad areas of the scheme. Then by reading the specific position descriptions the reader learns the next level of specificity in understanding thinking patterns over the positions. Studying reasoning structures under each position description is then essential for full understanding of thinking patterns for each position. Careful reading of reasoning structures along with their examples, and comparing reasoning structures within a position for similarities is suggested. Eventually the reader should be able to compare reasoning structures with those in adjacent positions to recognize distinctions.

To test understanding of a domain the trainee can begin rating the practice protocols provided after each section of the manual. Checking ratings with experts' responses in the

appendices can help the rater assess accuracy and areas of confusion. Continued practice at a later date following clarification of misunderstandings helps gauge increased understanding and proficiency. Following this process for all six domains provides the rater with the basic training needed for accurate rating of MER data.

Rating Instructions

Instructions follow on how to rate protocols for each domain. Steps in the general process are outlined and other circumstances that the rater may encounter as well as suggestions for resolution are provided.

1. Read the entire response for the domain. Remember that the first question only sets the stage for the response and that the reasoning structure(s) are likely to be found in the follow-up probes. The collective response to the follow-up questions should be used in interpreting the reasoning structure.

2. Identify the reasons/justifications for the respondent's thinking and decide the modal reasoning structure the respondent is presenting. Recognizing the modal reasoning structure entails deciphering reasons or opinions expressed for or against the stance the respondent has taken. The rater must be careful to distinguish between explained reasons versus cliches, and between clearly stated reasons versus those that seem to be afterthoughts in the response. (For example, the phrase "weighed the pros and cons" often appears in domain one. The rater must determine, based on the entire response, whether this is just a cliche or whether there is evidence that the respondent really did engage in this process.) Once the explanatory material is identified, the rater should try to summarize the essence of the material before going to the manual.

3. Read the general category descriptions in the manual to decide which area (dualism, transition, relativism) seems to be represented in the response.

4. Read the position descriptions within the general category chosen in No. 3 above to decide which position the response seems to represent.

5. Read the reasoning structures and examples under the position chosen in No 4 above and choose the one(s) that the response best matches. Reasoning structures will not necessarily match word for word. Look for those that contain the same basic idea. Remember that reasoning structures are not hierarchical and that the response may contain more than one.

6. Record the reasoning structure number(s) on the rating sheet under the appropriate domain.

Examples of Rating Instructions

The examples that follow illustrate the six steps in the rating process.

Example One

1. Domain one response: The decision was career choice. Because of my interest in television and architecture in high school I could have chosen either one, and I chose the former. I felt good about the alternatives. I knew that if my interest in television or telecommunications decreased I could switch to architecture. Choosing was difficult because I enjoyed both, but television-telecommunications seemed the wiser choice because it is a rapidly expanding business, offers innovations in technology, and is very profitable.

The most important considerations that came through my mind were availability of jobs, income, employment stability, and chances for upward mobility.

2. Modal reasoning structure: Choice made based on positive aspects of that field - job availability and security, profitable income, and chance to move up. Note that even though the person states that she or he could switch if interests change, this attitude is not the modal tone of the response.

3. General category represented by response: Transition based on existence of real options that do not exist in dualism, and lack of serious exploration of alternatives that would occur in relativism.

4. Position description represented in response: Position Three - criteria for choosing are future happiness, success and fulfillment of goals. These are not discussed in the depth a person in Position Five would use.

5. Reasoning Structure represented by response: 1.3.1 and 1.3.2. Telecommunications will work out best in the future with regard to success and it has more positive factors (income, job security) than does architecture.

6. Record ratings 1.3.1 and 1.3.2 on the rating sheet.

Example Two

1. Domain three response: The most beneficial teaching method was one in which we had (known) daily quizzes, and reinforcement after a test, you should go over what you got wrong - then you will remember it in the future. This made me prepare daily because I wanted to do well on my quizzes and keep my grades up. Also the reinforcement made me remember points I had missed. Disadvantages were that if you did not prepare for class you would fail the quizzes and get a lower grade. I learned how to prepare and remember. I like a friendly relationship with a teacher because I can feel comfortable asking questions.

2. Modal reasoning structure evident in the response: The teaching method was good for me because it made me prepare and told me when I had the right and wrong answers.

3. General category represented by the response: Dualism, because truth is known by authorities and through their methods they spell out the answers.

4. Position represented by the response: Position Two because students work to learn the answers through the quizzes.

5. Reasoning structure represented by the response: 3.2.4 because the method is good for students and tells them what they did wrong.

6. Record rating 3.2.4 on the rating sheet.

Exceptions

1. If you identify a reasoning structure but cannot find a similar one in the manual, the reasoning structure may represent a new category not evidenced in previous data. If you are sure the reasoning structure you identify fits the position you have chosen, list the domain, position, and no reasoning structure on the rating sheet (for example, 2.3.0 for domain two, Position Three, no reasoning structure), and note the new reasoning structure in the new category section of the rating sheet.

2. If you identify a reasoning structure but are unsure of its meaning because of seemingly contradictory ideas or lack of clarity in the response, think through the response from

each Perry position it could represent. For example the domain four response "Students talking makes class more interesting - you see more than one viewpoint. The students think of their own opinions and get to voice them" could be Position Three or Four. The response initially sounds like Position Four because it endorses seeing more than one viewpoint. A Position Four person, however, would discuss voicing opinions in the sense of broadening one's understanding rather than to make class more interesting and simply voicing and hearing opinions. Position Three thinkers often endorse hearing ideas and stating opinions, but do not focus on expanding the possibilities or on learning how to think as a result. Subsequently the best reasoning structure match is 4.3.3 (exposure to new ideas) rather than 4.4.1 (gaining a variety of perspectives). If this process does not yield a choice between the two positions, mark the response as unratable.

3. If you identify reasoning structures from more than one position and are having difficulty deciding which ones to use for rating, the response may represent a person in transition. In this case, decide which reasoning structures are the most prevalent in the response and assign the corresponding position as the modal position. If the other reasoning structures are prevalent enough to indicate transition (the general rule of thumb is one fourth of the thinking in a different position represents a transition), note their existence by adding a plus or a minus next to the modal position rating. For example, a modal 3 in transition to 4 would be listed as 3+. A modal three in transition from 2 would be listed as a 3-. The plus or minus is attached to the position rating of the three numbers for the reasoning structure. Thus if you chose reasoning structure 4.3.4 as the best match for modal reasoning but felt the person was in transition to 4 you would list 4.3+.4.

4. If you cannot identify a reasoning structure in the response, the response is unratable. Omissions in parts of the response, indecipherable responses, and the like do not necessarily result in an unratable domain protocol. As long as sufficient information is present to identify a reasoning structure, the response is ratable. However, insufficient information or unclear information that results in no reasoning structure makes the response unratable. If this is the case list the domain, and a zero for position and reasoning structure (for example: 2.0.0).

Calculating Total Protocol Ratings

Because learning to rate involves rating domain responses, the rater need not study calculating total protocol ratings (TPRs) until the certification stage. The scoring rules for arriving at TPRs are explained here for future reference.

Each of the six domains of a respondent's total protocol receives a domain rating via the process outlined above. The portion of the domain rating used in calculating the TPR is the position rating in the center of the three numbers. This will generally be a whole number, but may be accompanied by a plus or a minus to represent transition. The six domain ratings are used to determine the total protocol rating. TPRs can be calculated in two ways depending on how the researcher plans to use the data. For a picture of respondents' modal reasoning a modal TPR is calculated. For a comprehensive picture of respondents' reasoning a continuous TPR is preferable.

The modal TPR is determined by finding the dominant domain rating of the six domain ratings. This rating becomes the modal position for the TPR. For example, a protocol containing the ratings 3, 2, 3, 3, 3, and 3 would be assigned a 3 modal TPR. In addition to the modal rating, position ratings that occur in two or more domains are included in the TPR. Positions appearing in two domains of the six are listed in parentheses. For ex-

ample a protocol containing the ratings 2, 3, 2, 2, 3, and 2 would have a TPR of 2(3). In the case that no predominant rating exists, all ratings appearing in two or more domains are included. In the case where two ratings for each of three positions occur, as in 2, 3, 2, 4, 3, and 4, list all three with no dash: 234. If ratings are evenly split between two positions, as in 4, 5, 4, 4, 5, and 5, list both separated by a dash: 4-5. Ratings appearing in only one domain are not evidenced in the TPR. Thus a protocol with the ratings 4, 3, 2, 4, 3, and 3 would have a TPR of 3(4). As a result of this rule, even splits between two positions are possible with only two ratings for each position, as in 3, 4, 2, 4, 3, and 5, which would have a TPR of 3-4. In the case where one or more of the six domains is unratable, the modal TPR is calculated from the remaining domains using the same process. A total protocol must have at least three rated domains in order to receive a TPR. For example the ratings 5, 0, 0, 4, 0, and 0 would have a TPR of 0 whereas the ratings 5, 5, 0, 4, 0, and 0 would have a TPR of 5. In rare cases, particularly if some domains are unratable, it is possible to acquire ratings such as 1, 0, 2, 3, 0, and 0, in which no positions are evidenced in more than one domain. In that case a TPR of 0 should be assigned because no modal TPR exists.

The continuous TPR is more comprehensive in that it takes into account all six ratings and the possible transition pluses and minuses. This TPR is calculated by determining the arithmetic average of all domain ratings and dividing it by the total number of ratable domains. For example a total protocol including domain ratings of 2, 2, 3, 2, 4, and 2 would receive a TPR of 2.50. Transitional notations are also accounted for in this process. Transitional notations (indicating at least one fourth of the person's thinking) are transformed into numerical values prior to adding domain ratings. For example a 2+ would become a 2.25 prior to adding the domain ratings. The protocol containing ratings of 2, 2+, 3, 2, 4, and 2 would thus be added to 15.25 and receive a TPR or 2.54. Although averaging developmental levels is not always recommended, the continuous TPR does give the reader of the data more perspective than does the modal TPR in understanding a particular respondent's thinking patterns.

The next six chapters contain the rating manual, one domain per chapter. Each section of the manual is followed by practice protocols. The expert raters' ratings and notes of explanation for each practice protocol are located in the appendices. These are offered to assist the reader in learning the rating process. Information on acquiring permission to use the MER, as well as rater certification, is also located in the appendices.

CHAPTER NINE

DOMAIN ONE RATING MANUAL: DECISION MAKING IN AN EDUCATIONAL CONTEXT

DOMAIN ONE OVERVIEW

Position One

Only one choice perceived as truly available. (Often choices are listed but no consideration of them is evident.)

Position Two

Alternatives and a right choice exist; choice is made upon a superficial analysis of what is right, what one likes, what one should do, or what authority says to do. Consideration of future implications, although mentioned, is also superficial.

Position Three

Alternatives and a right choice exist; choice is made on basis of what will be best in the future (which is right but unknown yet; a process to determine what is best, what one will be happy with, what has the most positive factors is used).

Note: Distinction between 2 and 3 is seriousness of future considerations. For example 1.2.3 indicates doing what is right over what one likes whereas 1.3.4 indicates doing what is best for future versus short-term preferences. The difference is in the depth of discussion of the future.

Position Four

Alternatives exist, all equal or at least workable. Choice is made on basis of what is most workable at present, putting other alternatives off until later or eliminating those with negative aspects without genuine evaluation on some criteria. Discussion of alterna-

tives is "wishy-washy," going from one option to another; sometimes choice "happens" while options are being debated.

Position Five

Better or worse alternatives exist; choice made on basis of criteria and genuine consideration of choices in light of criteria.

MAJOR DISTINCTIONS

Whether alternatives exist and whether there is a right choice, equal choices, or better or worse choices.

How alternatives are considered: Consideration of alternatives does not happen at Position One, happens superficially at Position Two, is more serious but vague at Position Three (in order to find unknown right answer), becomes more tentative at Position Four (because there are no criteria to distinguish among choices) and becomes a process of genuine evaluation of criteria at Position Five.

LANGUAGE CAUTIONS

The term "weigh pros and cons" is often used without any sense of genuine consideration.

DOMAIN ONE POSITION DESCRIPTIONS

Domain one focuses on the construct of choosing or decision making. Reasoning structures regarding making choices or decisions vary across positions in the Perry scheme. General and position changes are described below.

DUALISM

In Positions One and Two the world view is absolute, characterized by either-or, right-wrong categories. Because this is coupled with the notion that truth is known, choosing becomes a matter of finding the true or right choices. Because authority figures are believed to know the truth, they have a strong influence on the decision-making process. Alternatives are not viewed as real options to consider. The process of choosing is generally described as one of finding out which option is the right one, utilizing simple criteria such as happiness and satisfaction. There is no introspection on decisions, and external circumstances are responsible for what happens.

Position One

Position One is an absolute perspective in its purest sense. The person in this structure cannot imagine that more than one alternative could exist or that a question could have more than one answer. The automatic assignment of alternatives to right and wrong results in a conflict-free world. Choices do not exist in the sense of thinking about options because there is no detachment or introspection. One just does the right thing, that which authority espouses.

Reasoning Structures

1.1.1 Right choice made on the basis of only one choice being perceived as truly available.

Example: I decided to come to this school basically because my sister goes here. I had three schools in mind for college. They were all relatively good schools. I signed up late for one, another's standards were too high for me, and my sister goes here - that was the big reason.

Position Two

Alternatives are recognized in Position Two even though they are not yet real options. A right choice exists and the choice is permanent. The choice is usually the one that is safest, that has the greatest degree of certainty. Criteria discussed are usually what one likes and what one can and should do. Pros and cons, if discussed, are described in a superficial manner and focus on external circumstances. The availability of alternatives may be seen as positive in terms of not feeling restricted or may be viewed as confusing in the attempt to determine the right one. Alternatives sometimes exist to help the student learn to find the right answers. Authorities still have the answers and external circumstances are still responsible for what happens.

Reasoning Structures

1.2.1 Basis for right choice is a superficial analysis of what is right. Decisions are often discussed in terms of the future, but personal implications of the decision are not discussed.

Example: Which major to take was probably my last major decision. I felt like I had to make the decision before I entered college. Then during the summer I got a job and by the end of the summer I was the the night manager. So I decided that management was right.

1.2.2 Basis for right choice is a superficial analysis of what one likes. Decisions are often discussed in terms of the future, but personal implications are not discussed.

Example: I had to make a decision of going to school to learn culinary arts or physical therapy. I chose physical therapy. I had many other alternatives to think about as a major. I felt that all oF the alternatives I thought about were very interesting and something I would enjoy doing. I chose physical therapy because I like working with the handicapped. Also I like exercising and using my body in lifting weights, running, and various kinds of sports.

1.2.3 Basis for right choices is what one should do (socialized "what is right"). This sometimes takes precedence over what one likes, and although mention of the future may be included, serious consideration of the future is not evident.

Example: Whether to keep my job or go to college. If I had kept my job I would have had enough money to pay for six months' rent in a new apartment. But if I went to college I could get a pay increase or a better job. I felt kind of stuck in the middle. I asked myself if I thought I could make it or would like to stay at this job for the rest of my life. I knew that I couldn't support anyone with my salary.

Example: Going to college versus playing in a rock band. Attending school or not attending anywhere and trying to make a living as a musician. Being a musician seemed much more rewarding, at least at first. But college would be more important for my long-term future. I chose the one that would be most beneficial to me in the long run. Considerations were my future well-being, money, happiness, and the like. Music would give me happiness now and maybe some money, but college would guarantee money in the long run.

1.2.4 Basis for right choice is that authority said to do it.

Example: I had to decide if I wanted to come to this school or stay in Texas with my family. I liked Texas. I didn't want to start school yet. I'm not sure about my major. I believe I would rather have stayed in Texas, but my parents suggested that I go for a year and see if I would like it. I chose to come here.

TRANSITION

In Positions Three and Four a transition occurs in the world view, and thus also in the reasoning structure regarding choices. The acceptance of uncertainty as legitimate characterizes these two positions. In Position Three uncertainty is acknowledged but temporary. Because answers will be known in the future, dependence on authority remains. As uncertainty arises more and more, it seems to become commonplace, and thus the structure is altered to "there are no answers". Certainty still exists in some areas, but, for the most part, things are uncertain. The person at Position Three utilizes a process to ensure that things will work out, and at Position Four feels that all choices are equal in value so there is no right choice.

Position Three

In Position Three choosing is still a matter of finding the right answer, but is complicated by the notion that all truth is not known yet. Authorities still know the truth that can be known, and thus maintain much of their influence. Alternatives are still confusing because it is even harder to find the right one. The Position Three person generally describes choosing as engaging in the right process or formula for deciding, with the notion that if the process is right it will work out in the end. Criteria discussed with regard to choosing are usually future happiness, success, and fulfillment of goals.

Reasoning Structures

1.3.1 Basis for right choice is what will work out best in the future in relation to what one likes, is capable of, and will be happy with.

Example: To go back to postgraduate school or continue working as a general dentist. Alternatives were to possibly buy in with my employer in his practice and work where I want to live, or return to school and thereby lose money and time previously spent developing a practice and leaving where I want to live. As others, I had many second thoughts as to what would be a better decision for the future. Also I was fortunate to have been accepted into my graduate program. I thought

about what would be my best choice for the future, not just 2 years from now. Also I felt I would be happier specializing in what I enjoyed doing the most.

1.3.2 Basis for right choice is what has the greatest number of positive aspects or important factors.

Example: Whether or not to leave the state for college and get a scholarship or stay in state and have my parents pay for my education. I felt as though I was in a dilemma. It was such a hard decision to make, and I wanted to make the right one. I asked myself the good things involved in each alternative, and the one with the greatest number along with the most important factors won out.

1.3.3 Right choice is made on the basis of a process to determine which choice is best for the future.

Example: Whether or not to attend this school because of the scholarship opportunities and the academic qualities. I had many opportunities to attend numerous colleges on an athletic scholarship and also by virtue of my high school grades. Because I had so many choices it was very hard to decide which college to attend. Many variables had to be considered, and because all the colleges were very good academically, the choice was even harder. I narrowed down the previous list of 20 to 10 colleges and tried to list the good and bad points of each. After that was done I cut it down to the top 5 and proceeded to do the same thing in more depth. Then I really did some heavy thinking, weighing all the pros and cons again, and tried to decide which college could fulfill my goals for the future in academics and swimming.

1.3.4 Right choice occurs on the basis of what is best for the future versus short-term preferences.

Example: To decide whether to transfer schools and switch majors. Stay in engineering at an out-of-state school or change majors and transfer here. I was reluctant to leave my old school because I really liked it there. However, I knew that in the long run, it would be better for me to transfer and also to change my major. I reached the last straw with engineering and had been closed out of enough classes to require staying in school an extra semester. I couldn't afford to do that. So my decision was made partly by finances and partly by my changing vocational preference.

Position Four

Position Four brings with it the notion that all truth is not known. Uncertainty exists as legitimate for the first time. The initial response is that there are no answers, no criteria for evaluating alternatives. Authorities' opinions are no better than anyone else's, reducing their influence on choices significantly. Alternatives are now viewed as fun because they represent freedom to explore. This is not an uncomfortable feeling because all alternatives are equal; none are better than others, making choosing less of a risk. Introspection becomes possible in the sense of thinking about one's own opinion. The actual choos-

ing, however, may be described as frustrating because there are no criteria on which to base a choice. If criteria exist they are hard to rank. Information discussed in relation to choosing includes one's own feelings or preferences and some practical information. The Position Four person wants to expand rather than narrow by making firm choices. Thus a choice may not be expressed. The oppositional Four is more pessimistic about the lack of criteria for making choices, and is likely to express cynicism when talking about making choices.

Reasoning Structures

1.4.1 All choices are perceived as having equal value so deciding becomes a matter of picking the choice that is more convenient, workable, or valuable at the time.

Example: Career choice: continuing education or accepting an attractive position in the field. Alternatives were a secure, well-paying job with a state agency, or a graduate teaching associateship and beginning a new program at a new school. They were both good enough situations so I couldn't lose either way. Weighed pros and cons, chose what I thought was most valuable to my career goals. Considerations were career objective - degree versus semivaluable experience, finances - well-paying job versus stipend, and time - accomplish career objective now or delay objective.

Example: Career choice. To remain in pursuit of a full-time career as a musician or find something else to do part or full time. I loved playing the violin, had played it for 15 years, and it was difficult to not feel guilty about considering other choices, although my experience since receiving my BM in 1980 showed me that it would be good to diversify my work. I did a lot of reading - books on choosing a career- a lot of talking with friends, some who knew me well and some who hardly knew me - a lot of writing and soul searching and simply daydreaming! Considerations were my best guess as to what sort of occupation would make me the happiest, a career that would provide me with a variety of challenges, and an adequate income.

1.4.2 All choices are perceived as workable, but those perceived as negative are eliminated without a genuine evaluation of criteria.

Example: The decision was to return to graduate school or return to teaching. Really no alternatives, it was either one or the other. There probably were some other career alternatives but they were not attractive career-wise for me to consider at the time. Well, I didn't want to return to teaching because of a bad experience with my administrators. So my alternative was really to find some other career (journalism), which made my interest expand into media law. I usually (when making a decision) list mentally the positive and negative aspects of the alternatives. Whatever comes up more positive, I usually do.

1.4.3 Choice constitutes a delay of choice because of indecision and a feeling that one can change one's mind later.

Example: What to do after high school. I didn't feel like rushing into college but did want to go eventually. I didn't want a full-time job, but I did need the money. I didn't mind living at home, but didn't want to remain dependent on my parents. I knew I could go to college any time I wanted, so I could always try some other things first. I decided on a one-year delay while living at home and on trying to find a job that I could enjoy. Living at home took the pressure off me to earn a living at any job I could dig up. I wanted to maintain my carefree life style as long as possible. I did not want to become an indentured servant like so many workers - ideally I wanted to be self-employed. I needed time to decide what to study at college when I did start.

1.4.4 All choices are perceived as equal, so choice is a matter of picking the one that is best for now, putting the rest off until later.

Example: I decided to postpone going to graduate school to become an anesthesist for about 5 years. Alternatives were to remain an RN without additional school, go to graduate school to get a master's in nursing, or go to anesthesist school. I would not mind any of them. I think I would be happy doing any of the alternatives. I chose alternative number 3 because it was the most feasible and most congenial with my choice of life style. I chose the alternative that most suited my personality and the choice I thought would make me happiest.

1.4.5 All choices have equal value and a decision is not expressed.

Example: I had to decide between spring quarter in France or at school. Spring quarter in France was my first choice because I felt I needed a break in routine. Staying at school during spring quarter was my second choice. I would learn a lot here that could be beneficial. I've been in school all my life; I need a breath of fresh air. First I thought about the emotional benefits. I feel like I'm going through a routine instead of digging in and learning. Secondly I had to deal with the cost of each alternative. Then I had to find out if I could graduate at the expected time and if I could get credit for going to France.

1.4.6 Choice just happens while alternatives are being debated.

Example: When I graduated from undergrad I had to decide what I should do before I started graduate school the following fall. Work full or part time, and if so where? Take graduate courses toward a degree, and if so, in what? I was confused. I didn't want to work in anything other than my field, but you can't get a decent job with a BA in sociology/psychology. I looked at the idea of taking a few courses, but because you can apply only 10 hours to a degree, I would only go to winter quarter; then what would I do until fall? It all seemed a waste of money in the long run, particularly because I didn't know what I was doing, so I decided to find a job. A job just fell into my lap, so I felt I should take it. I was lucky when hundreds were trying to find a job in the city.

RELATIVISM

The relativist's perspective on choosing is one of evaluating alternatives and supporting his or her choice of alternatives with evidence. Truth is relative, that is, it exists in a context. Authority rests on the basis of experience and expertise in that context. The relativist recognizes that even though diversity exists, better or worse choices can be made. Because detachment and introspection are possible for the first time, a more serious exploration of alternatives occurs. The description of the process of choosing is an account of options, reasons to support or not to support each one, and why this together supports the choice made (or the choice preferred if not yet made).

Position Five

Alternatives are no longer right or wrong. Choices are a routine part of life, although individuals may not be ready to face the implication of such a relativistic world for themselves. Choices are based on one's own articulated values or reasons instead of external circumstances or authority figures. Criteria for choosing are usually complex, including consideration of one's own needs, one's family, future goals, self-fulfillment, and so forth. Information is gathered through introspection, soliciting feelings of significant others, and observing or acquiring experience in external circumstances. External experts may be consulted, but the Position Five person evaluates the experts' advice. The person at Position Five genuinely explores alternatives and decides on the better choice. She or he can articulate support for the choice.

Reasoning Structures

1.5.1 Choice is described as the "better" one on the basis of one's criteria.

> Example: I had to make the decision about starting a full-time teaching position at a state juvenile institution or staying at an office position that would soon change. I did not like the situation for the teaching job, but it would provide full-time employment and earn hours toward an 8-year teaching certificate in the field in which I had obtained education degrees. Present job was fine, but the office was being closed down, and I didn't know where I would actually be moved in the company. Pay was low for the amount of work that I did per week. I chose to teach at the institution because I needed to break into the education field in some way, and this was the first full-time opportunity to come up for me.

1.5.2 Choice is described as the "better" one after criteria are established.

> Example: To choose between anthropology or psychology for graduate school or to stay home. I was ambivalent between the two majors, but I was sure I wanted to continue in graduate school and finish my studies. In order to take care of my family (I live 60 miles from school) I decided to study part-time. I chose the subject (psychology) that would allow me to practice where I live, near my family. Considerations were not to neglect my family (husband and children) for my studies, and to continue studying despite other considerations (time, fatigue, money). My priorities in life are to be a good mother, to be a good wife, and to try to fulfill my own personal aspirations that is to say, to have a career of my own.

1.5.3 Choice is described as the "better" one after describing information collected for making the decision.

Example: Selection of my PhD general examination committee members. More than 20 faculty members within the department plus at least two from each of three other departments could be considered. I first made up a list of the most probable candidates (about 14). I talked personally to all my most likely selections and visited their labs, offices, classes, and seminars in which one or more of these were participants. Then after consultation with my advisor, I personally discussed the degree, my research, and their potential participation in my committee with each of the last six or seven. Finally I selected the individuals and asked each of them in preferred order until my committee had been chosen.

1.5.4 Choice is described as the "better" one after gathering needed information from experts.

Example: How to invest money for my parents whose health was failing and who were forced to give up their business. Alternatives were stocks, bonds, banks, treasury bills, and so forth. In view of the many alternatives available today for investment, and in view of the ever-changing economy, I was, needless to say, confused, but confident that a secure investment was possible and need not be permanent. By talking to a representative from each of the above-mentioned alternatives, I was able to determine the best possible course of action at the time.

1.5.5 Choice is described as the "better" one in light of calculated risks and balanced priorities.

Example: Quitting my job (and having my husband quit his) so I could return to school. Alternatives were to keep jobs and forget school, keep jobs and commute to a nearby school, or quit jobs and attend the program of my choice. The first alternative was comfortable but not satisfying. Time seemed right for a change, but we were secure in our present situation (friends, location). The second was unattractive because of the half-way approach to school. The third was frightening but not implausible, also exciting. I looked at the "worst case" that could result from any of the choices - decided which "worst case" I (we) couldn't live with. Then chose the alternative that was most attractive to us and had a worst case we could live with.

1.5.6 Choice is described after taking initiative to create new alternatives.

Example: Continue working as a professional physicist or return to full-time graduate study in physics toward a PhD. My philosophy toward decisions is that the alternatives are limited only by myself, and that the alternatives I already have are shaped to a large degree by my ingenuity. I liked my particular alternatives - continue doing work in laser and optical physics that I enjoyed very much and that paid me $31,000 a year to have fun while taking graduate classes part time, or return to my beloved academia and make $7,000 per year while both accelerating my education and providing myself with longer vacations to go mountain climbing and sky

diving. I was not satisfied with the alternatives, so I modified them so that I could sort of have both. I obtained a several-year leave of absence from my current position.

1.5.7 Choice is described as the "better" one with implied weighing of alternatives.

Example: To take a teaching position or work in industry. I chose the teaching position over the industry job. I like the benefits of the teaching job over those of industry. I weighed the advantages and disadvantages of both positions. Considerations were teaching experience, reduced work load (I had time to finish ongoing research), location - the teaching job was on the coast in a small town compared to Houston, Texas, and money - the teaching job paid less but the location and reduced work load compensated for this.

PROTOCOL # 02205105

THINK ABOUT THE LAST TIME YOU HAD TO MAKE A MAJOR DECISION ABOUT YOUR EDUCATION IN WHICH YOU HAD A NUMBER OF ALTERNATIVES (E.G., WHICH COLLEGE TO ATTEND, COLLEGE MAJOR, CAREER CHOICE, ETC.). WHAT WAS THE NATURE OF THE DECISION?

The last major decision I made concerned what college major to choose.

WHAT ALTERNATIVES WERE AVAILABLE TO YOU?

I feel that I have the ability to do anything that I want to.

HOW DID YOU FEEL ABOUT THESE ALTERNATIVES?

It really confuses me. I am still not positive I have made the right decision.

HOW DID YOU GO ABOUT CHOOSING FROM THE ALTERNATIVES?

I picked the career that I was most familiar with that I have the qualifications for.

WHAT THINGS WERE THE MOST IMPORTANT CONSIDERATIONS IN YOUR CHOICE? PLEASE GIVE DETAILS.

I wanted to use my French and teaching is one occupation that I can. I have to be working with people. I do not enjoy working alone. I enjoy kids. They are super people. Teaching had everything I wanted.

PROTOCOL # 02206012

THINK ABOUT THE LAST TIME YOU HAD TO MAKE A MAJOR DECISION ABOUT YOUR EDUCATION IN WHICH YOU HAD A NUMBER OF ALTERNATIVES (E.G., WHICH COLLEGE TO ATTEND, COLLEGE MAJOR, CAREER CHOICE, ETC.). WHAT WAS THE NATURE OF THE DECISION?

Deciding what major to pursue.

WHAT ALTERNATIVES WERE AVAILABLE TO YOU?

Any major within the business college.

HOW DID YOU FEEL ABOUT THESE ALTERNATIVES?

It was difficult to choose a major because some majors make more money when they graduate than others. All of the business majors sounded interesting.

HOW DID YOU GO ABOUT CHOOSING FROM THE ALTERNATIVES?

I talked to my academic advisor who referred me to some books that could tell me what I would really be doing when I graduate with that major. Then I had to decide what I really wanted to do.

WHAT THINGS WERE THE MOST IMPORTANT CONSIDERATIONS IN YOUR CHOICE? PLEASE GIVE DETAILS.

What I would actually be happy with. Money is a consideration but if I am not going to be happy it wouldn't be worth it to me. Since I would most likely have to live with this decision for the rest of my life, I might as well enjoy myself.

PROTOCOL # 02107167

THINK ABOUT THE LAST TIME YOU HAD TO MAKE A MAJOR DECISION ABOUT YOUR EDUCATION IN WHICH YOU HAD A NUMBER OF ALTERNATIVES (E.G., WHICH COLLEGE TO ATTEND, COLLEGE MAJOR, CAREER CHOICE, ETC.). WHAT WAS THE NATURE OF THE DECISION?

Deciding to leave a good paying job to return to school (college).

WHAT ALTERNATIVES WERE AVAILABLE TO YOU?

To remain in the position that I held; go to work for my father; go to college to major in Natural Resources (which was what I really wanted to do).

HOW DID YOU FEEL ABOUT THESE ALTERNATIVES?

The job that I held had been rewarding in many ways but during the time that I was there I did not feel completely happy. My father's company would have provided the same type of position hence I would not feel much better about it.

HOW DID YOU GO ABOUT CHOOSING FROM THE ALTERNATIVES?

I decided what things meant the most to me and used them as a criteria to evaluate the choices that were available to me. After a great deal of consideration I chose to come to Ohio State.

WHAT THINGS WERE THE MOST IMPORTANT CONSIDERATIONS IN YOUR CHOICE? PLEASE GIVE DETAILS.

To have a challenging career; to enjoy my work; to be able to help others and work in a science related field; I also wanted a career that would allow me to accept responsibility and lead others.

PROTOCOL # 02205064

THINK ABOUT THE LAST TIME YOU HAD TO MAKE A MAJOR DECISION ABOUT YOUR EDUCATION IN WHICH YOU HAD A NUMBER OF ALTERNATIVES (E.G., WHICH COLLEGE TO ATTEND, COLLEGE MAJOR, CAREER CHOICE, ETC.). WHAT WAS THE NATURE OF THE DECISION?

Career choice.

WHAT ALTERNATIVES WERE AVAILABLE TO YOU?

I could choose languages, public relations, business, communication or education (bilingual).

HOW DID YOU FEEL ABOUT THESE ALTERNATIVES?

I felt it was quite difficult to make a decision about which one I should choose.

HOW DID YOU GO ABOUT CHOOSING FROM THE ALTERNATIVES?

I try to choose the one which gather the most skills necessary for every one of the alternatives.

WHAT THINGS WERE THE MOST IMPORTANT CONSIDERATIONS IN YOUR CHOICE? PLEASE GIVE DETAILS.

My interest in working with people, especially from different countries, my communication skills and my previous experiences tutoring in high school.

PROTOCOL # 05104066

THINK ABOUT THE LAST TIME YOU HAD TO MAKE A MAJOR DECISION ABOUT YOUR EDUCATION IN WHICH YOU HAD A NUMBER OF ALTERNATIVES (E.G., WHICH COLLEGE TO ATTEND, COLLEGE MAJOR, CAREER CHOICE, ETC.). WHAT WAS THE NATURE OF THE DECISION?

Which college to attend and deciding to move to Columbus.

WHAT ALTERNATIVES WERE AVAILABLE TO YOU?

I could have stayed in West Virginia and went to Marshall University or move to Ohio and go to Ohio State.

HOW DID YOU FEEL ABOUT THESE ALTERNATIVES?

Even though I had lived in West Virginia all my life I really wanted to go to Ohio State.

HOW DID YOU GO ABOUT CHOOSING FROM THE ALTERNATIVES?

I chose to make a change instead of living in the same place. I wanted to make a change.

WHAT THINGS WERE THE MOST IMPORTANT CONSIDERATIONS IN YOUR CHOICE? PLEASE GIVE DETAILS.

The most important thing was that I really wanted to attend Ohio State and I didn't care to leave home to do it. Also, after going to a very small high school I wanted to make a change and go to a large university.

PROTOCOL # 05108055

THINK ABOUT THE LAST TIME YOU HAD TO MAKE A MAJOR DECISION ABOUT YOUR EDUCATION IN WHICH YOU HAD A NUMBER OF ALTERNATIVES (E.G., WHICH COLLEGE TO ATTEND, COLLEGE MAJOR, CAREER CHOICE, ETC.). WHAT WAS THE NATURE OF THE DECISION?

Whether to come to graduate school at Ohio State was the decision.

WHAT ALTERNATIVES WERE AVAILABLE TO YOU?

Ohio State full-time, keep working full-time and attend one of a couple of nearby schools part-time; just keep working.

HOW DID YOU FEEL ABOUT THESE ALTERNATIVES?

I knew that I wanted a change and I felt that either of the choices about going back to school would be good for me.

HOW DID YOU GO ABOUT CHOOSING FROM THE ALTERNATIVES?

I considered the positive and negative aspects of each of the alternatives and tried to determine my true feelings about them. I decided that this experience at OSU would be the best for me and those closest to me.

WHAT THINGS WERE THE MOST IMPORTANT CONSIDERATIONS IN YOUR CHOICE? PLEASE GIVE DETAILS.

The most important consideration was that I do what I felt was the best for me. It was important that I not settle for what I thought of as less than the optimum challenge. If I had chosen otherwise, I would always wonder if I could have succeeded.

PROTOCOL # 01109137

THINK ABOUT THE LAST TIME YOU HAD TO MAKE A MAJOR DECISION ABOUT YOUR EDUCATION IN WHICH YOU HAD A NUMBER OF ALTERNATIVES (E.G., WHICH COLLEGE TO ATTEND, COLLEGE MAJOR, CAREER CHOICE, ETC.). WHAT WAS THE NATURE OF THE DECISION?

Whether I should simplify a major project or go ahead with it as planned.

WHAT ALTERNATIVES WERE AVAILABLE TO YOU?

1. Abandon dissertation topic, find a new one.
2. Scale down present dissertation topic.
3. Go ahead with dissertation topic.

HOW DID YOU FEEL ABOUT THESE ALTERNATIVES?

1. Defeat.
2. A humble, intelligent position.
3. Adventurous.

HOW DID YOU GO ABOUT CHOOSING FROM THE ALTERNATIVES?

I predicted what my problems would be when bringing the project to a conclusion.

WHAT THINGS WERE THE MOST IMPORTANT CONSIDERATIONS IN YOUR CHOICE? PLEASE GIVE DETAILS.

I was concerned about creative opportunity. If you see a two year project through to its conclusion, you want to feel that you have discovered and overcame limitations.

PROTOCOL # 03208033

THINK ABOUT THE LAST TIME YOU HAD TO MAKE A MAJOR DECISION ABOUT YOUR EDUCATION IN WHICH YOU HAD A NUMBER OF ALTERNATIVES (E.G., WHICH COLLEGE TO ATTEND, COLLEGE MAJOR, CAREER CHOICE, ETC.). WHAT WAS THE NATURE OF THE DECISION?

I had to decide whether or not to change careers - weighing the possible alternatives and the accompanying requirements.

WHAT ALTERNATIVES WERE AVAILABLE TO YOU?

1. Continuing as part-time teacher, full-time housewife.
2. Beginning a Ph.D. program in Family Relations Human Development
3. Business and computer courses.
4. Social work - MSW program.

HOW DID YOU FEEL ABOUT THESE ALTERNATIVES?

1. Required very little in the way of change - but I felt burned out in both roles.
2. Seemed to open-ended and long.
3. Not really motivated in this direction.
4. Short, structured and would lead me to work that I felt would be satisfying.

HOW DID YOU GO ABOUT CHOOSING FROM THE ALTERNATIVES?

I investigated the material and requirements of each program. I took one course in FRHD and one course in the school of Social Work. I spoke to individuals who had gone through the different programs.

WHAT THINGS WERE THE MOST IMPORTANT CONSIDERATIONS IN YOUR CHOICE? PLEASE GIVE DETAILS.

1. Which degree or training would lead to the career that would be most satisfying. What did I really want to do?
2. Which alternative is most efficient in terms of time, money.
3. How would my decision effect my family, their needs, plans, etc.

PROTOCOL # 02207053

THINK ABOUT THE LAST TIME YOU HAD TO MAKE A MAJOR DECISION ABOUT YOUR EDUCATION IN WHICH YOU HAD A NUMBER OF ALTERNATIVES (E.G., WHICH COLLEGE TO ATTEND, COLLEGE MAJOR, CAREER CHOICE, ETC.). WHAT WAS THE NATURE OF THE DECISION?

Career choice - to go to college or not.

WHAT ALTERNATIVES WERE AVAILABLE TO YOU?

Work in my field.

Continue on in college.

HOW DID YOU FEEL ABOUT THESE ALTERNATIVES?

I felt very comfortable in these alternatives.

HOW DID YOU GO ABOUT CHOOSING FROM THE ALTERNATIVES?

Choosing the alternatives by looking at the positive and negative aspects of both.

WHAT THINGS WERE THE MOST IMPORTANT CONSIDERATIONS IN YOUR CHOICE? PLEASE GIVE DETAILS.

1. Parents - discussion and what they felt.
2. Looking at my goals in a distance.
3. Salary opportunities.
4. Job availabilities.

114

PROTOCOL # 05107228

THINK ABOUT THE LAST TIME YOU HAD TO MAKE A MAJOR DECISION ABOUT YOUR EDUCATION IN WHICH YOU HAD A NUMBER OF ALTERNATIVES (E.G., WHICH COLLEGE TO ATTEND, COLLEGE MAJOR, CAREER CHOICE, ETC.). WHAT WAS THE NATURE OF THE DECISION?

To drop "CPTR 211" which was interfering with other classes.

WHAT ALTERNATIVES WERE AVAILABLE TO YOU?

Drop class and concentrate on major course.

Remain in course and other classes would suffer.

Remain in course but concentrate on major and risk flunking CPTR 211.

HOW DID YOU FEEL ABOUT THESE ALTERNATIVES?

I hated to turn my back on a computer course given the direction of the world's economy toward information based industry, but the major course included a project which if done well would be a good entry in my portfolio

HOW DID YOU GO ABOUT CHOOSING FROM THE ALTERNATIVES?

I'm still young and will learn computers later so the portfolio won out.

WHAT THINGS WERE THE MOST IMPORTANT CONSIDERATIONS IN YOUR CHOICE? PLEASE GIVE DETAILS.

Which will help me get a job later in the discipline; enjoy most.

PROTOCOL # 01208080

THINK ABOUT THE LAST TIME YOU HAD TO MAKE A MAJOR DECISION ABOUT YOUR EDUCATION IN WHICH YOU HAD A NUMBER OF ALTERNATIVES (E.G., WHICH COLLEGE TO ATTEND, COLLEGE MAJOR, CAREER CHOICE, ETC.). WHAT WAS THE NATURE OF THE DECISION?

I had to decide whether to return to school full-time and be a T.A.

WHAT ALTERNATIVES WERE AVAILABLE TO YOU?

"Working"

HOW DID YOU FEEL ABOUT THESE ALTERNATIVES?

When I moved to Columbus 1-1/2 years ago and looked for jobs within the fields I was familiar with or interested in and come up with "0," I had to take a job finally that was not in and of itself interesting to me.

HOW DID YOU GO ABOUT CHOOSING FROM THE ALTERNATIVES?

The job I did choose was here - a secretarial job. I worked here for a year so that I would be able to get to the library on lunch break and take evening courses.

WHAT THINGS WERE THE MOST IMPORTANT CONSIDERATIONS IN YOUR CHOICE? PLEASE GIVE DETAILS.

Working at a crummy job increased my interest in the work I love: being a student and a teacher. I had to make a financial sacrifice to return to work full-time, but the difference is happiness in doing what I do 2000 hours a year.

PROTOCOL # 01208081

THINK ABOUT THE LAST TIME YOU HAD TO MAKE A MAJOR DECISION ABOUT YOUR EDUCATION IN WHICH YOU HAD A NUMBER OF ALTERNATIVES (E.G., WHICH COLLEGE TO ATTEND, COLLEGE MAJOR, CAREER CHOICE, ETC.). WHAT WAS THE NATURE OF THE DECISION?

I decided that I needed a change in my career, although I was still interested in the helping profession.

WHAT ALTERNATIVES WERE AVAILABLE TO YOU?

Change grade levels and continue teaching.

Take a leave of absence and go to school for Masters in new field.

Play it safe, stay in the same grade level, but make major changes in style, techniques, etc.

HOW DID YOU FEEL ABOUT THESE ALTERNATIVES?

I was anxious to try something new and spread my wings. But, I was quite concerned about the chance of not finding another job. My feelings changed daily - from being enthusiastic to being afraid.

HOW DID YOU GO ABOUT CHOOSING FROM THE ALTERNATIVES?

My husband and I decided that if I wanted to do this, now was the time. Later it would be worse.

WHAT THINGS WERE THE MOST IMPORTANT CONSIDERATIONS IN YOUR CHOICE? PLEASE GIVE DETAILS.

Money, of course, was a problem. Not only would I be unemployed for a year, but I was also taking a chance of being unemployed with a Master's degree. This change would also involved moving to another part of the city. I had to decide whether I was really ready to leave teaching.

PROTOCOL # 02106000

THINK ABOUT THE LAST TIME YOU HAD TO MAKE A MAJOR DECISION ABOUT YOUR EDUCATION IN WHICH YOU HAD A NUMBER OF ALTERNATIVES (E.G., WHICH COLLEGE TO ATTEND, COLLEGE MAJOR, CAREER CHOICE, ETC.). WHAT WAS THE NATURE OF THE DECISION?

I decided to go to OSU to be in the band and to live in the stadium.

WHAT ALTERNATIVES WERE AVAILABLE TO YOU?

1. Stay in the Army.

2. Go to OSU to be in the band and to live in the stadium.

HOW DID YOU FEEL ABOUT THESE ALTERNATIVES?

I did not want to stay in the Army. I wanted to go to OSU to be in the band and to live in the stadium.

HOW DID YOU GO ABOUT CHOOSING FROM THE ALTERNATIVES?

I told Ohio's Adjutant General that I wanted to go to OSU to be in the band and to live in the stadium.

WHAT THINGS WERE THE MOST IMPORTANT CONSIDERATIONS IN YOUR CHOICE? PLEASE GIVE DETAILS.

Did I want to stay in Missouri and play in an Army band where life was easy and the barracks were air-conditioned, or did I want to go to OSU to be in the band and live in the stadium.

PROTOCOL # 05110162

THINK ABOUT THE LAST TIME YOU HAD TO MAKE A MAJOR DECISION ABOUT YOUR EDUCATION IN WHICH YOU HAD A NUMBER OF ALTERNATIVES (E.G., WHICH COLLEGE TO ATTEND, COLLEGE MAJOR, CAREER CHOICE, ETC.). WHAT WAS THE NATURE OF THE DECISION?

Career choice.

WHAT ALTERNATIVES WERE AVAILABLE TO YOU?

Return to school or remain at present occupation.

HOW DID YOU FEEL ABOUT THESE ALTERNATIVES?

The alternatives were reasonable and allowed enough basis for a satisfactory decision.

HOW DID YOU GO ABOUT CHOOSING FROM THE ALTERNATIVES?

I took a stand as to future plans and goals as opposed to continuation of present.

WHAT THINGS WERE THE MOST IMPORTANT CONSIDERATIONS IN YOUR CHOICE? PLEASE GIVE DETAILS.

Present occupation.

Future goals.

PROTOCOL # 01210089

THINK ABOUT THE LAST TIME YOU HAD TO MAKE A MAJOR DECISION ABOUT YOUR EDUCATION IN WHICH YOU HAD A NUMBER OF ALTERNATIVES (E.G., WHICH COLLEGE TO ATTEND, COLLEGE MAJOR, CAREER CHOICE, ETC.). WHAT WAS THE NATURE OF THE DECISION?

Move to take a job.

WHAT ALTERNATIVES WERE AVAILABLE TO YOU?

1. Take the teaching job and move.
2. Hope to find another teaching job in a different location.
3. Not move and settle for a non-teaching job.

HOW DID YOU FEEL ABOUT THESE ALTERNATIVES?

I would have liked to have had a chance to get a teaching job that would enable us to stay where we are.

HOW DID YOU GO ABOUT CHOOSING FROM THE ALTERNATIVES?

Compared pros and cons, visited the site to get a better chance to investigate housing, child care, other job possibilities.

WHAT THINGS WERE THE MOST IMPORTANT CONSIDERATIONS IN YOUR CHOICE? PLEASE GIVE DETAILS.

The fact that one job offer (with both of us working simultaneously) was available seemed like too good an opportunity to pass up. All of the unknowns which were cause for concern seem insignificant in the long run.

CHAPTER TEN

DOMAIN TWO RATING MANUAL: ROLE OF THE LEARNER IN THE LEARNING PROCESS

DOMAIN TWO OVERVIEW

Position One

To obtain knowledge from teacher. May prefer one mode of learning over another (facts vs. concepts), but both are right.

Position Two

To obtain knowledge from teacher in the easiest way possible or do what teacher says is good for you to obtain the knowledge.

Position Three

To understand information rather than memorize; to learn processes to explore and resolve unknowns (narrowing perspective --way to get answers); to prefer practical information that is useful now and in future.

Position Four

To think on one's own, share with peers to expand ideas and possibilities for how to use information (broadening perspective). Oppositional Fours learn what is required on test.

Position Five

To exchange and compare ideas, integrate knowledge, and apply it in a context.

MAJOR DISTINCTIONS

Nature of knowledge: known by teacher (Position One, Position Two), some unknown (Position Three), all unknown (Position Four), can be decided on basis of criteria (Position Five).

What student does with knowledge: obtains it (Position One, Position Two), understands it (Position Three), thinks about it (Position Four), evaluates and applies it (Position Five).

LANGUAGE CAUTIONS

"Understand" is often used when real meaning is "obtain." Social expectations regarding thinking and being open-minded are often found in response to the part of this question that elicits disadvantages after respondent has chosen facts as the preferred mode of learning.

DOMAIN TWO POSITION DESCRIPTIONS

Domain two focuses on the role of the learner. As reasoning structures change across Perry positions, the role of the learner is perceived differently.

DUALISM

In Positions One and Two truth is known and authorities serve as the holders of knowledge. The role of the learner is to obtain this knowledge. As a result the learner sees himself or herself in a rather passive role as recipient. The instructor or textbook gives the knowledge and the learner must remember and be able to repeat the right answers. The dualist will be rather confused or frustrated with abstract learning experiences where the right answers are not clear. The students' advice on how to learn will be in the form of paying close attention and getting accurate notes on what authorities say so that the right answers are not missed.

Position One

Knowledge or things learned are what the external authority dictates as the truth. The Position One person cannot imagine there being more than one answer to a question. There is no question that authorities are right. The Position One person describes the best learning situation to be one in which the truth is obtained and is one that he or she likes.

Reasoning Structures

2.1.1 Facts and concepts are both absolute/right. The preferred mode of learning is the one the student likes.

> Example: I like to learn more about facts. Just the specific details. It seems in ideas and concepts you have so many to remember. Learning the actual facts of a subject, the most important details, is an advantage. A disadvantage is that maybe you are missing the small details of a subject.

Example: I learn more with facts because I like history, and it deals with a lot of dates. Historical facts stay with you forever, but they are boring and confusing.

Position Two

Learning is still guided by the search for the right answer, and students prefer the most direct route to getting the answers. The role of the learner remains one of acquiring the truth. However, sometimes authorities want students to work to find the answer themselves. In this case the role of the learner is to work hard at doing what the teacher wants. This is seen as an exercise that is good for the mind, and is not a genuine search for the truth because authorities already know the truth. It is at this position also that the student recognizes that some authorities do not seem to know the answers. They are simply labeled "dumb" authorities.

Reasoning Structures

2.2.1 Preferred type of learning is the method that is clearly right and is the easiest way to obtain the answers.

Example: I learn best in classes that focus on factual information because I can remember things better - they are real. Concepts and ideas are hard for me to remember. The advantages are that I can look back to the information if I need to. There are no disadvantages.

Example: Factual information. The information is easy to understand and relate to. It is easier to study because it isn't abstract. It is uniform and precise, the answers are right or wrong, there is nothing in between. A disadvantage is that the answers are right or wrong; you don't get any partial credit.

Example: I learn best with ideas and concepts because I have a hard time memorizing facts. This way there is less to memorize and you can memorize by examples.

2.2.2 Preferred type of learning is one that is good for one, often one suggested by authorities.

Example: Classes that deal with ideas and concepts. Because factual information bores me, and when learning ideas and concepts you have to think. Learning ideas and concepts helps stretch your mind. Factual information can be retained by a computer, but ideas and concepts can only be understood by humans. Factual information is a necessity to everyday life, and sometimes we need to understand it before we can understand ideas and concepts.

2.2.3 Preferred type of learning is one that is interesting, because when the class is interesting it is easier to pay attention and learn.

Example: I prefer ideas and concepts. They are more interesting. It makes the class more interesting, and a person feels like paying attention and learning more. The disadvantage is that it may not be all true data.

Example: Factual information. Facts are backed up by things I can relate to. They are taught in such a way that the subject is interesting and entertaining. The advantage is that it is an enjoyment. I enjoy a class where I feel interested to learn.

TRANSITION

Learning becomes increasingly confusing in Positions Three and Four. This confusion is a result of the ever-increasing body of knowledge in which uncertainty exists. The realization that all truth is not known is tempered initially by the belief that it will be known in the future. As more areas are revealed to be uncertain, uncertainty is accepted as the "way it is." The learner becomes more interested in the learning process. The role of the learner initially is the same as in earlier positions for concrete areas of knowledge. In uncertain areas the learner focuses on the processes for finding the answer. When uncertainty becomes common, the focus remains on the process but not necessarily to find the right answer. The process becomes one of thinking the way teachers want students to think because the right answers no longer exist.

Position Three

In Position Three the notion that some of the truth is unknown at present even to authorities complicates finding the right answers. Abstract learning contexts like philosophy are likely to be viewed as areas where the truth is yet to be discovered. In concrete contexts, the learner's role remains one of receiving the answers but in uncertain contexts it shifts to one of learning along with the authority how to find the answers. Students' advice about the latter is in the form of going through the right steps to ensure that the truth will be discovered in the future. The student generally draws a distinction between learning facts and concepts. Facts are learned by memorizing whereas concepts require understanding.

Reasoning Structures

2.3.1 Preferred type of learning is a process in which memorization of facts is no longer sufficient. Facts need to be linked to ideas in order to gain a "real" understanding one will remember.

Example: I can think about the material and relate it to other ideas so that I can remember it better. It is often more interesting than straight facts. If it is factual information, I am just being told. If it's conceptual information, I am being asked to think. I can design my own thoughts and theories from discussed material. Also if it is factual, it can be proven correct or incorrect. If it is conceptual, that is not necessarily the case. The disadvantage is that I don't learn concrete facts well and they need to be learned.

Example: Ideas and concepts are easier for me because I don't get as bored with ideas as I do with straight facts. Ideas and concepts are easier to learn. No memorization. You don't forget them as easily. At times they can be hard to understand, but once you understand them you don't forget them.

2.3.2 Preferred type of learning is one that results in practical information that is useful at present and will be in the future.

Example: Ideas and concepts can be utilized and practiced. Facts cannot be used, thus I forget them shortly after committing them to memory for an exam. Ideas are more practical and interesting too. They can be disputed, and make for good conversation.

2.3.3 Preferred type of learning is one that provides a basis for exploring unknown areas in the attempt to discover truth.

Example: Because of the level of education I have attained, I am aware of factual information in my field and like opportunities to apply concepts and ideas to past learning. The fact that learning concepts and ideas involves students in the learning process is an advantage. Learning can be active discovery, not rote memorization. However, sometimes the major point is missed or faulty assumptions can be made because of the lack of factual information. Improper conclusions may be made.

2.3.4 Preferred type of learning is one that provides information or a process to be used in solving other problems or answering other questions.

Example: Ideas and concepts. You learn procedures for analysis and problem solving. You can apply the procedures for any general problem. A disadvantage is that it can often be just memorization and not understanding what you're doing or why.

2.3.5 Preferred type of learning is one in which student becomes involved through giving opinions and self-expression, thus making class more interesting and meaningful.

Example: Classes that focus on ideas and concepts. I get more involved in giving my ideas and am more interested. I learn more and enjoy myself and put myself into understanding and learning. The disadvantage is that I won't learn as many facts.

2.3.6 Preferred type of learning is one that makes students think, one that challenges them to be creative and explore on their own.

Example: Ideas and concepts spark my curiosity and enhance my learning by challenging me to find the answers. Conceptual learning is not dull. You can challenge it and not be told, necessarily, that you are wrong. It is not a "memorizing" class but an "understand" class.

Example: Ideas and concepts. Because you can take in what you learn, analyze it, and make your own opinion or whatever. They give me more flexibility instead of someone else drilling facts into my head. The disadvantage is that you have to do a lot of thinking and concluding "by yourself."

Position Four

Uncertainty arrives full force in Position Four, altering the role of the learner significantly. The world view incorporates uncertainty as the way the world is, a sort of "there are no right answers" notion. Learning is no longer the search for answers but rather a process of thinking. The focus is on how to learn the method of thinking the teacher wants. Oppositional Fours are likely to advise playing the game as well as asserting independence by argument because teachers are no longer a source of right answers. Adhering Fours are likely to advise trying to learn the method and trying to think independently. Various relationships between facts and concepts are described, all aimed at expanding possibilities and applying knowledge to a variety of situations.

Reasoning Structures

2.4.1 Preferred type of learning is one that focuses on a way to think.

Example: It doesn't matter as long as it is clearly expressed and organized so I can follow the thinking. I like ideas and concepts though. I need both. I need the change. It seems easier to go by myself from ideas and concepts to fact than vice versa. If you grasp the ideas well it is like an open door to a greater world of possibilities. You can find the possibilities yourself and explore them. You should not forget to come down to the facts from time to time. There is a danger in living in a world of ideas and being away from reality.

2.4.2 Preferred type of learning is one that focuses on learning to think for oneself.

Example: I learn best in classes that focus on ideas and concepts because I am an English major and need to learn to think for myself. I need to be able to read something and form my own ideas from the work. I've never been a stickler for factual information. I don't feel it is as important as thinking for yourself and forming your own ideas.

2.4.3 Preferred type of learning is one that allows for sharing of information among peers in order to expand one's knowledge of possible perspectives.

Example: I'd have to say I learn best from a class that combines both aspects - applying ideas to facts or vice versa. If I had to choose one, however, it would be ideas and concepts. I find it more challenging to be allowed to voice my own ideas plus learn the ideas of others, teachers as well as students. This makes the class less boring as well. Ideas and concepts are subjective, and no one can be wrong about their own ideas. Others' ideas are interesting. A class that centers around facts requires a lot of memorizing and does not allow students to form their own opinions or apply what they learn to the present or to themselves.

2.4.4 Preferred type of learning is one that expands the possibilities for using information. Information is used to broaden perspectives rather than to narrow them.

Example: I think it depends on what course you are taking and what your are trying to learn. I enjoy classes more when the focus is on ideas and concepts because I like the intellectual stimulatio nat ideas and concepts can have. The advantage is that you may be able to apply the ideas in more than one area or discipline.

Example: Definitely classes that focus on ideas and concepts. Very often factual information leaves me empty. One could spend a lifetime collecting facts and never understand anything about life. Ideas and concepts link life together whereas facts divide it into pieces. I can, as a person, learn, grow, and understand myself and the world through ideas. One does need a certain number of facts to stay in touch with reality and to complement the ideas. Too much emphasis on ideas could lead to having one's head in the clouds.

2.4.5 Preferred type of learning is whatever is called for on tests, even if that information is of no use later. Learning is defined as a game to acquire grades although it is implied that this is not really learning.

Example: Factual information needs only to be memorized and I'm good at remembering facts. Tests are usually multiple choice, true-false, or yes-no and focus on factual information rather than on ideas. You remember the facts for the tests, but they are rarely of any use after that.

2.4.6 Preferred type of learning is one that matches the reality of uncertainty.

Example: I am best at ideas and concepts because very few topics I study are factual "one truth" topics. This jives with the way I think presently. For example, there is no one truth; we create reality by what we believe. The advantage to this is that it keeps my psyche, body, and my whole person floating or moving. If one has rigid absolutes of right and wrong, I think one misses a lot of what is out there. The disadvantage is that sometimes I miss the security of right and wrong. It feels like a false sense of security, but it's less rocky or stormy than being afloat. And it is important to gain security for oneself in some way.

RELATIVISM

The relativistic view of truth is that truth exists in a context. The acquisition of knowledge is based on experience, expertise, and competence in exploring a given context. Authority is based on this same process, and authorities who are perceived as experts can help in clarifying ideas for the student. However, the learner's role is to engage in a genuine search for evidence to support ideas. Thus the learner focuses on evaluation and refinement of thoughts and comparison of ideas for the purpose of choosing the better one(s). There is a quality requirement for the exchanging of information, and application is aimed at better uses in particular contexts. Students' advice is likely to focus on having a genuine interest in the course topic and critical examination of materials and opinions.

Position Five

The learner's role is to actively engage in genuine inquiry, taking responsibility for his or her own learning. The teacher is seen as a source of guidance who can help clarify ideas but who may not be an authority on the topic being explored. The focus of exploration is to narrow to better choices by evaluating information.

Reasoning Structures

2.5.1 Preferred type of learning is one that assists in evaluating one's perspective as new information is obtained.

Example: Difficult question, may depend on circumstance, but overall factual information seems best. I seem to be more comfortable in taking factual information and forming my own ideas and concepts from that information than vice versa. You know your basis for decision is based on fact, and ideas and concepts can be modified as the need arises by new conflicting facts.

Example: Factual information allows evaluation of most ideas, deductively or inductively, and consequently leads to formation and refinement of useful concepts. Whereas more subjective educational efforts tend (I think) to be more often exercises in recognition use and interpretation of imagery.

2.5.2 Preferred type of learning involves an exchange of ideas to further one's understanding through comparing ideas.

Example: Ideas and concepts. I don't like memorizing facts that I could look up in books if I happen to need them at a future date. Nothing is absolute; everyone can look at the available data and draw their own conclusions. Different people's interpretations may vary, and comparison of these may help envision an even better interpretation.

2.5.3 Preferred type of learning involves conceptualization and thinking through problems in order to solve them. Better or worse solutions exist.

Example: I am most interested in how systems function and how systems interrelate. I think this ties into the way my brain functions best. I am particularly adept at seeing patterns and relationships and working intuitively with data. I have always found it more useful to deduce interrelationships and systems in practical, applied research, teaching, and actual practice. If you have to solve problems, this is a better mind-set.

2.5.4 Preferred type of learning involves integration of knowledge in order to apply it in a context.

Example: I prefer classes that focus on ideas and concepts because I dislike memorizing facts without general principles, but I do well in both types of classes. Once I understand a basic principle and how it relates to other principles, I can use

it logically and retain it seemingly forever. Some instructors are not creative enough to write tests that measure ability to apply rather than parrot knowledge.

PROTOCOL # 03109001

DO YOU LEARN BEST IN CLASSES WHICH FOCUS ON FACTUAL INFORMATION OR CLASSES WHICH FOCUS ON IDEAS AND CONCEPTS?

Factual information.

WHY DO YOU LEARN BEST IN THE TYPE OF CLASS YOU CHOSE ABOVE?

More practical for utilization when involved in the work force. You can guess that this kind of information will help you on your job.

WHAT DO YOU SEE AS THE ADVANTAGES OF THE CHOICE YOU MADE ABOVE?

Being able to take facts about something and apply it to a function or problem instead of just knowing theoretical concepts that may not have validity in all practical situations.

WHAT DO YOU SEE AS THE DISADVANTAGES OF THE CHOICE YOU MADE ABOVE?

Ideas and concepts must be known to have a global knowledge base of an area. Sometimes information can be too specific.

IF YOU COULD GIVE ADVICE TO ANYONE ON HOW BEST TO SUCCEED IN COLLEGE COURSEWORK, WHAT KIND OF ADVICE WOULD YOU GIVE THEM? TALK ABOUT WHAT YOU BELIEVE IS THE KEY TO DOING WELL IN COLLEGE COURSES.

Focus in on the instructor of the course.

What is he/she trying to relate to you.

After obtaining the focus of the course, read the material presented so to gain a knowledge base for the subject.

Armed with these things, a student will understand the subject and know what is expected to be known by the instructor.

PROTOCOL # 03107059

DO YOU LEARN BEST IN CLASSES WHICH FOCUS ON FACTUAL INFORMATION OR CLASSES WHICH FOCUS ON IDEAS AND CONCEPTS?

Ideas and concepts definitely

WHY DO YOU LEARN BEST IN THE TYPE OF CLASS YOU CHOSE ABOVE?

There's too much information in the world to memorize it all. Plus what's the MEANING of facts without concepts to tie them together. Rather than drown in facts, I'd rather transcend them and myself with seeing the patterns of the world.

WHAT DO YOU SEE AS THE ADVANTAGES OF THE CHOICE YOU MADE ABOVE?

One could learn facts to the day he/she dies and never really grow and change the way one does from ideas. Concepts give overviews of reality, they can give one a handle on large and complex things.

WHAT DO YOU SEE AS THE DISADVANTAGES OF THE CHOICE YOU MADE ABOVE?

Being too cerebral, one can neglect the emotions and the senses and these are important to living. Also ideas often conflict and lead to more questions, but all of life and reality is like this too.

IF YOU COULD GIVE ADVICE TO ANYONE ON HOW BEST TO SUCCEED IN COLLEGE COURSEWORK, WHAT KIND OF ADVICE WOULD YOU GIVE THEM? TALK ABOUT WHAT YOU BELIEVE IS THE KEY TO DOING WELL IN COLLEGE COURSES.

In college courses, in general, skip most of the text books - they're boring. But go to all the classes, listen and take notes - you'll do well on the tests. Unfortunately most courses don't allow for real learning - tests measure test-taking skills not knowledge. There is usually little or no class discussion. Schedules are too rigidly adhered to.

PROTOCOL # 02207053

DO YOU LEARN BEST IN CLASSES WHICH FOCUS ON FACTUAL INFORMATION OR CLASSES WHICH FOCUS ON IDEAS AND CONCEPTS?

I learn best on factual information.

WHY DO YOU LEARN BEST IN THE TYPE OF CLASS YOU CHOSE ABOVE?

Because facts are easier to deal with because they are simple to study.

WHAT DO YOU SEE AS THE ADVANTAGES OF THE CHOICE YOU MADE ABOVE?

An advantage is it is easier to memorize facts rather than ideas or concepts.

WHAT DO YOU SEE AS THE DISADVANTAGES OF THE CHOICE YOU MADE ABOVE?

Need of memorizing is not always good - sometimes it is better to have some knowledge on ideas.

IF YOU COULD GIVE ADVICE TO ANYONE ON HOW BEST TO SUCCEED IN COLLEGE COURSEWORK, WHAT KIND OF ADVICE WOULD YOU GIVE THEM? TALK ABOUT WHAT YOU BELIEVE IS THE KEY TO DOING WELL IN COLLEGE COURSES.

I believe the key to doing well in college courses is simply to be organized and keep up with the studies. Attending every lecture is important along with putting forth a balance of effort on each course.

PROTOCOL # 01108106

DO YOU LEARN BEST IN CLASSES WHICH FOCUS ON FACTUAL INFORMATION OR CLASSES WHICH FOCUS ON IDEAS AND CONCEPTS?

At the present time, on factual information.

WHY DO YOU LEARN BEST IN THE TYPE OF CLASS YOU CHOSE ABOVE?

These which focus on concepts were a part of my earlier educational experiences. I understand trends, concepts, practices. Now, getting factual information helps me to put "meat on the skeleton."

WHAT DO YOU SEE AS THE ADVANTAGES OF THE CHOICE YOU MADE ABOVE?

Factual information is real, tangible, immutable, often not subject to interpretation.

WHAT DO YOU SEE AS THE DISADVANTAGES OF THE CHOICE YOU MADE ABOVE?

The meaning and influence of facts, events, and persons is difficult to assess without an understanding of their relationship within a framework of the history of ideas and trends.

IF YOU COULD GIVE ADVICE TO ANYONE ON HOW BEST TO SUCCEED IN COLLEGE COURSEWORK, WHAT KIND OF ADVICE WOULD YOU GIVE THEM? TALK ABOUT WHAT YOU BELIEVE IS THE KEY TO DOING WELL IN COLLEGE COURSES.

1. Do not rely on courses alone for education. Undertake independent reading and study.
2. Study each day - do not procrastinate.
3. Love your chosen discipline.
4. Discipline your study habits and be faithful in class attendance.
5, Pray that the Lord would guide you through the educational experience.

PROTOCOL # 05107218

DO YOU LEARN BEST IN CLASSES WHICH FOCUS ON FACTUAL INFORMATION OR CLASSES WHICH FOCUS ON IDEAS AND CONCEPTS?

Classes that focus on ideas and concepts.

WHY DO YOU LEARN BEST IN THE TYPE OF CLASS YOU CHOSE ABOVE?

Factual information needs to be memorized. Ideas and concepts can be internalized.

WHAT DO YOU SEE AS THE ADVANTAGES OF THE CHOICE YOU MADE ABOVE?

Not sure.

WHAT DO YOU SEE AS THE DISADVANTAGES OF THE CHOICE YOU MADE ABOVE?

A lot of classes deal strictly in factual information.

IF YOU COULD GIVE ADVICE TO ANYONE ON HOW BEST TO SUCCEED IN COLLEGE COURSEWORK, WHAT KIND OF ADVICE WOULD YOU GIVE THEM? TALK ABOUT WHAT YOU BELIEVE IS THE KEY TO DOING WELL IN COLLEGE COURSES.

First, be selective in the professors that you take. Second, put in the time early in the quarters. (Don't get behind.) Third, take advantage of any extra help that might be given by the professors or teacher assistants.

PROTOCOL # 05104066

DO YOU LEARN BEST IN CLASSES WHICH FOCUS ON FACTUAL INFORMATION OR CLASSES WHICH FOCUS ON IDEAS AND CONCEPTS?

Those which focus on factual information.

WHY DO YOU LEARN BEST IN THE TYPE OF CLASS YOU CHOSE ABOVE?

Because they are concrete and they can be seen. They are able to show examples and that helps in the learning process.

WHAT DO YOU SEE AS THE ADVANTAGES OF THE CHOICE YOU MADE ABOVE?

Concrete examples.

WHAT DO YOU SEE AS THE DISADVANTAGES OF THE CHOICE YOU MADE ABOVE?

There is no lead way for any other answers. Factual information means that it is concrete.

IF YOU COULD GIVE ADVICE TO ANYONE ON HOW BEST TO SUCCEED IN COLLEGE COURSEWORK, WHAT KIND OF ADVICE WOULD YOU GIVE THEM? TALK ABOUT WHAT YOU BELIEVE IS THE KEY TO DOING WELL IN COLLEGE COURSES.

I would tell them to attend class with some regularity and take good class notes. They seem to help more than textbooks because they are in "normal" language. Also, if you attend class regularly the course can be put in better perspective. It seems to flow together.

PROTOCOL # 05204078

DO YOU LEARN BEST IN CLASSES WHICH FOCUS ON FACTUAL INFORMATION OR CLASSES WHICH FOCUS ON IDEAS AND CONCEPTS?

Factual information.

WHY DO YOU LEARN BEST IN THE TYPE OF CLASS YOU CHOSE ABOVE?

All information is based on one criteria and all information is pertinent.

WHAT DO YOU SEE AS THE ADVANTAGES OF THE CHOICE YOU MADE ABOVE?

It is easier to organize.

WHAT DO YOU SEE AS THE DISADVANTAGES OF THE CHOICE YOU MADE ABOVE?

This presents a very narrow view of a subject.

IF YOU COULD GIVE ADVICE TO ANYONE ON HOW BEST TO SUCCEED IN COLLEGE COURSEWORK, WHAT KIND OF ADVICE WOULD YOU GIVE THEM? TALK ABOUT WHAT YOU BELIEVE IS THE KEY TO DOING WELL IN COLLEGE COURSES.

I believe knowing and understanding one subject before going to the next is very important. Being prepared for each class, EVERY DAY (reading assignments DAILY!) If you don't understand something - get help.

PROTOCOL # 03208033

DO YOU LEARN BEST IN CLASSES WHICH FOCUS ON FACTUAL INFORMATION OR CLASSES WHICH FOCUS ON IDEAS AND CONCEPTS?

Ideas and concepts.

WHY DO YOU LEARN BEST IN THE TYPE OF CLASS YOU CHOSE ABOVE?

Better opportunity to integrate into own thinking.

More meaningful type of learning.

WHAT DO YOU SEE AS THE ADVANTAGES OF THE CHOICE YOU MADE ABOVE?

More lasting learning.

Develop a way of thinking and looking at the world.

WHAT DO YOU SEE AS THE DISADVANTAGES OF THE CHOICE YOU MADE ABOVE?

Focus on factual information has its place in learning, depending the subject matter being presented.

IF YOU COULD GIVE ADVICE TO ANYONE ON HOW BEST TO SUCCEED IN COLLEGE COURSEWORK, WHAT KIND OF ADVICE WOULD YOU GIVE THEM? TALK ABOUT WHAT YOU BELIEVE IS THE KEY TO DOING WELL IN COLLEGE COURSES.

Key to doing well is to take coursework in which you have special interest and which have applicability to yourself and future career goals.

PROTOCOL # 02106000

DO YOU LEARN BEST IN CLASSES WHICH FOCUS ON FACTUAL INFORMATION OR CLASSES WHICH FOCUS ON IDEAS AND CONCEPTS?

I learn best in classes that have competent teachers.

WHY DO YOU LEARN BEST IN THE TYPE OF CLASS YOU CHOSE ABOVE?

Because bad teachers have to be bad for a reason, and good teachers have to be good for a reason. Good teachers are usually good because you learn more.

WHAT DO YOU SEE AS THE ADVANTAGES OF THE CHOICE YOU MADE ABOVE?

The advantage of the choice I made above is that I didn't really make a choice. I cleverly avoided it by making a new choice.

WHAT DO YOU SEE AS THE DISADVANTAGES OF THE CHOICE YOU MADE ABOVE?

The disadvantage of the choice I made above is that I had to explain why I made the above choice.

IF YOU COULD GIVE ADVICE TO ANYONE ON HOW BEST TO SUCCEED IN COLLEGE COURSEWORK, WHAT KIND OF ADVICE WOULD YOU GIVE THEM? TALK ABOUT WHAT YOU BELIEVE IS THE KEY TO DOING WELL IN COLLEGE COURSES.

Listen to the teachers.

Read all the material.

Contribute to class discussion (this gets you noticed by the prof).

Write good papers.

Don't take calculus.

Make plenty of time to study.

Take classes you like.

PROTOCOL # 05110162

DO YOU LEARN BEST IN CLASSES WHICH FOCUS ON FACTUAL INFORMATION OR CLASSES WHICH FOCUS ON IDEAS AND CONCEPTS?

Ideas and concepts.

WHY DO YOU LEARN BEST IN THE TYPE OF CLASS YOU CHOSE ABOVE?

How to make decisions based upon available information.

WHAT DO YOU SEE AS THE ADVANTAGES OF THE CHOICE YOU MADE ABOVE?

A better understanding of available information as opposed to repetition of facts.

WHAT DO YOU SEE AS THE DISADVANTAGES OF THE CHOICE YOU MADE ABOVE?

These classes inherently lack structure at times.

IF YOU COULD GIVE ADVICE TO ANYONE ON HOW BEST TO SUCCEED IN COLLEGE COURSEWORK, WHAT KIND OF ADVICE WOULD YOU GIVE THEM? TALK ABOUT WHAT YOU BELIEVE IS THE KEY TO DOING WELL IN COLLEGE COURSES.

Find what their personal interests are and to base their education upon these interests.

PROTOCOL # 02105067

DO YOU LEARN BEST IN CLASSES WHICH FOCUS ON FACTUAL INFORMATION OR CLASSES WHICH FOCUS ON IDEAS AND CONCEPTS?

I learn best in classes which focus on ideas and concepts.

WHY DO YOU LEARN BEST IN THE TYPE OF CLASS YOU CHOSE ABOVE?

I seem to have a short concentration period and, therefore, have trouble memorizing facts, but I can pick up on ideas and concepts quite easily.

WHAT DO YOU SEE AS THE ADVANTAGES OF THE CHOICE YOU MADE ABOVE?

I don't really need to study very much in an "idea" class. I also don't have much trouble making decisions or solving problems.

WHAT DO YOU SEE AS THE DISADVANTAGES OF THE CHOICE YOU MADE ABOVE?

I have trouble memorizing the formulae and facts that are needed for nearly all classes, even ones with primary focuses on concepts or ideas.

IF YOU COULD GIVE ADVICE TO ANYONE ON HOW BEST TO SUCCEED IN COLLEGE COURSEWORK, WHAT KIND OF ADVICE WOULD YOU GIVE THEM? TALK ABOUT WHAT YOU BELIEVE IS THE KEY TO DOING WELL IN COLLEGE COURSES.

Set aside some time each day and use it for studying, reviewing, and doing homework. Use this time regularly. Also, never get behind in coursework. Once one falls behind, he lacks the foundation needed for the rest of the course.

PROTOCOL # 02106075

DO YOU LEARN BEST IN CLASSES WHICH FOCUS ON FACTUAL INFORMATION OR CLASSES WHICH FOCUS ON IDEAS AND CONCEPTS?

Ideas and concepts.

WHY DO YOU LEARN BEST IN THE TYPE OF CLASS YOU CHOSE ABOVE?

I like to evaluate situations and find those types of classes the most challenging.

WHAT DO YOU SEE AS THE ADVANTAGES OF THE CHOICE YOU MADE ABOVE?

I like to consider myself as a "thinking" person rather than a "memorizing" person.

WHAT DO YOU SEE AS THE DISADVANTAGES OF THE CHOICE YOU MADE ABOVE?

IF YOU COULD GIVE ADVICE TO ANYONE ON HOW BEST TO SUCCEED IN COLLEGE COURSEWORK, WHAT KIND OF ADVICE WOULD YOU GIVE THEM? TALK ABOUT WHAT YOU BELIEVE IS THE KEY TO DOING WELL IN COLLEGE COURSES.

It's a matter of budgeting time and keeping organized. One must come up with his schedule and a system of studying and follow it.

PROTOCOL # 05210024

DO YOU LEARN BEST IN CLASSES WHICH FOCUS ON FACTUAL INFORMATION OR CLASSES WHICH FOCUS ON IDEAS AND CONCEPTS?

Ideas and concepts.

WHY DO YOU LEARN BEST IN THE TYPE OF CLASS YOU CHOSE ABOVE?

I don't find facts, figures, etc., very interesting. As a result, I may not spend the time and effort necessary to memorize them. I forget them easily. I enjoy thinking about different aspects of a concept or idea because I put more effort into these kind of classes. I learn more.

WHAT DO YOU SEE AS THE ADVANTAGES OF THE CHOICE YOU MADE ABOVE?

I'm good at conceptualizing, at analyzing theories and concepts. I'm often able to grasp the essence of an idea and generate different perspectives, possibilities and related issues.

WHAT DO YOU SEE AS THE DISADVANTAGES OF THE CHOICE YOU MADE ABOVE?

I can be lax about learning and/or including details, i.e. factual data. I always need to double check to be sure I pay enough attention to facts that I don't make intuitive leaps that aren't supported by data.

IF YOU COULD GIVE ADVICE TO ANYONE ON HOW BEST TO SUCCEED IN COLLEGE COURSEWORK, WHAT KIND OF ADVICE WOULD YOU GIVE THEM? TALK ABOUT WHAT YOU BELIEVE IS THE KEY TO DOING WELL IN COLLEGE COURSES.

Making a deliberate decision to stick with it - putting in the necessary time and effort to succeed. To do your best. This doesn't always mean you will "do well" in the course, but it means you will get the most out of it that you are able.

PROTOCOL # 01109137

DO YOU LEARN BEST IN CLASSES WHICH FOCUS ON FACTUAL INFORMATION OR CLASSES WHICH FOCUS ON IDEAS AND CONCEPTS?

Concept-centered courses which demands a great deal of performance.

Factual-centered courses which demand little performance.

WHY DO YOU LEARN BEST IN THE TYPE OF CLASS YOU CHOSE ABOVE?

I like to store facts for future use in arguments or work intensely on the development of arguments based on previously gathered data. I like to know which "mode" I'm in.

WHAT DO YOU SEE AS THE ADVANTAGES OF THE CHOICE YOU MADE ABOVE?

Clear definition of problems.

WHAT DO YOU SEE AS THE DISADVANTAGES OF THE CHOICE YOU MADE ABOVE?

Periods in which great patience is required alternate with periods of great energy demand.

IF YOU COULD GIVE ADVICE TO ANYONE ON HOW BEST TO SUCCEED IN COLLEGE COURSEWORK, WHAT KIND OF ADVICE WOULD YOU GIVE THEM? TALK ABOUT WHAT YOU BELIEVE IS THE KEY TO DOING WELL IN COLLEGE COURSES.

Argue with your books and make sure that in some especially interesting courses - courses in which you have considerable familiarity with subject matter already - your problems with texts are addressed by teachers and other classmates. In some courses, decide that you will be a listener, stick to that, even at the risk of coming off rather incommunicative.

PROTOCOL # 05107001

DO YOU LEARN BEST IN CLASSES WHICH FOCUS ON FACTUAL INFORMATION OR CLASSES WHICH FOCUS ON IDEAS AND CONCEPTS?

I learn best when dealing with ideas and concepts.

WHY DO YOU LEARN BEST IN THE TYPE OF CLASS YOU CHOSE ABOVE?

Ideas and concepts seem to me to be "people oriented." Factual information sometimes seems to be cold and impersonal and I don't like that.

WHAT DO YOU SEE AS THE ADVANTAGES OF THE CHOICE YOU MADE ABOVE?

I think that interpersonal skills are enhanced more by ideas and concepts than by factual interpretations.

WHAT DO YOU SEE AS THE DISADVANTAGES OF THE CHOICE YOU MADE ABOVE?

This thinking has led me to a strong distaste for mathematical and scientific matters. I didn't do well in physics because, basically, I didn't give a shit!

IF YOU COULD GIVE ADVICE TO ANYONE ON HOW BEST TO SUCCEED IN COLLEGE COURSEWORK, WHAT KIND OF ADVICE WOULD YOU GIVE THEM? TALK ABOUT WHAT YOU BELIEVE IS THE KEY TO DOING WELL IN COLLEGE COURSES.

The key to doing well in school is liking and being interested in what is being taught. If I CARE about what is being taught, I really feel that I'll do better than anyone in the class. My advice would be to stay away from courses that you feel would be boring. If you think you are going to be bored, you probably will be.

CHAPTER ELEVEN

DOMAIN THREE RATING MANUAL: ROLE OF THE INSTRUCTOR IN THE LEARNING PROCESS

DOMAIN THREE OVERVIEW

Position One

To provide and explain information.

Position Two

To clarify information, answer questions, review, present, or structure class in a way that ensures students get the information; make information entertaining so it is easy to listen to.

Position Three

To focus on understanding; let students apply thinking through hands-on experiences and express themselves to create excitement about learning. Teacher should be caring and organized.

Position Four

To teach students how to learn and think; let students share ideas and formulate own solutions.

Position Five

To focus on applying knowledge in a context, problem solving, and discussing perspectives evaluatively.

MAJOR DISTINCTIONS

What student does with information: gets information (Position One, Position Two), understands it (Position Three), thinks about it independently (Position Four), is able to apply and critically evaluate it (Position Five).

Responsibility of the instructor: to give information (Position One), make sure students "get" information (Position Two), help students understand information and be excited about learning (Position Three), help students learn to think (Position Four), participate in critical evaluation of information (Position Five).

DOMAIN THREE POSITION DESCRIPTIONS

Domain Three focuses on the role of the instructor in the learning process. As the learner's view of truth changes, his or her expectations of the instructor change accordingly.

DUALISM

In Positions One and Two the truth is assumed to be known, and known to authorities. Instructors are automatically regarded as authorities whose role it is to pass on knowledge and truth to the learner. Because the dualistic perspective is an absolute one, concrete structured teaching methods are preferred. Dualistic learners prefer presentations by the instructor that clearly spell out the right answers. Clear and specific assignments are preferred. Learners tend to see class discussion as less useful because their peers are not authorities. Learners describe the preferred relationship with the instructor as receiving approval when they demonstrate acquisition of the right answers.

Position One

The individual at this position does not recognize uncertainty or alternate possibilities. Only one right answer exists for each question and that answer is whatever authority dictates. What authority says is generally accepted without question. The role of the instructor is to give the right answers in as clear a method as possible. The learner takes in everything from the instructor so that it can be accumulated and therefore learned.

Reasoning Structures

3.1.1 The instructor gives the information the student needs to learn and explains it.

> Example: The most beneficial teaching method to me is when the teacher lectures and the class takes notes. I can understand it better when I write it down and the teacher explains it to us. It is not beneficial when the teachers go fast and you don't get everything down. The most important thing to learn is how to pay attention and to catch the important things.

Position Two

Authorities are still perceived as knowing the right answers. It is preferable that they simply present them in as clear a fashion as possible. However, students in Position Two accept that it is good for them to look for the answers themselves. If the instructor wants

this to occur, he or she should be specific as to how to proceed and provide the right answers eventually. The role of the instructor is to make sure students understand. Instructors may use a variety of methods as long as they maintain control.

Reasoning Structures

3.2.1 Preferred teaching methods involve providing details and clear facts. The instructor goes over the information and uses such methods as visual aids to help students understand.

Example: The best method has to be the review method that is done every couple of days. This method was excellent because the subject was always kept fresh in your mind and you just didn't learn it for the day; once it's reviewed enough it's hard to forget.

Example: Good lectures in which the professor makes it easy and clear for note taking. It is easier to study the notes you have taken if they are well organized and make sense, and pertain to the lecture accurately. (Note distinction between this and 3.3.4 organization.)

3.2.2 Preferred teaching methods involve clarifying information and answering questions.

Example: Lecture method with allowance for questions. The instructor is able to explain the subject matter. Normally, the lecture method can be an effective method for information dissemination. The instructor should answer questions in class and be available for student conferences.

3.2.3 Preferred teaching methods involve the teacher making the information entertaining, because then is easier to listen and thus learn better.

Example: I think an instructor who doesn't make any person bored all the time is a good instructor. He has to be on the level of the students, he has to know what is interesting to the students and what is boring. If it is boring, he has to make that subject interesting. If a student is interested in the subject he will listen and learn more. I learned if you have a good instructor you always keep your mind and thought on him. There is also less temptation to skip class.

Example: I prefer methods that involve the students, that let them be creative - that made learning fun. The students were less apt to be bored and listless. You have to involve students in learning as much as possible to get them interested and motivated.

3.2.4 Preferred teaching method is one that is "good for students", that lets the students do something, and lets them know what they did wrong.

Example: I think the most beneficial effect of different teaching would be participation. Actually letting the student do a certain project on his own. Because the student could do something on his own and learn from his mistakes. You wouldn't

know if you made a mistake unless the teacher told you, so a one-to-one relationship would be good so you know when you were wrong.

Example: The teacher never stated when tests or quizzes would be held. They were always a surprise. This made students want to come to class every day so they would know the material and be present for testing. Some students may have felt more stressed this way and possibly not performed as well as they could have.

TRANSITION

The expanding role of uncertainty alters the role of the instructor as well as students' expectations of instructor-student relationships. Authorities are no longer regarded as having all the answers. Initially authority's role is to help the student learn the way to find the answers that are unknown at present. Developing a relationship with the instructor is perceived as helpful to learning the process. This is even more important when uncertainty prevails and learning is simply learning a way to think. At this point authorities are relieved of responsibility of having any answers because there are no right answers.

Position Three

In Position Three instructors maintain a great deal of their authority. However, the learner has discovered that some truth is not known at present. As the learner's focus turns to finding a process to use to discover the unknowns, the instructor's role alters from one of giving the answers to one of helping the students learn the process of finding them. The teacher's role becomes one of guiding the learner to understand information. The learner is more open to abstract teaching methods than before but is still likely to see student participation as having minimal significance to learning. Preferred teaching methods are those that assist in learning the process for thinking and searching. The instructor-student relationship is beginning to expand because the student views getting to know the instructor as part of this learning process. A positive attitude on the part of the instructor toward students is essential to helping them learn better. The processes below become the focus for learning.

Reasoning Structures

3.3.1 Preferred learning process involves teaching methods that focus on rapport between the student and instructor.

Example: A relaxed atmosphere with some restrictions such as required attendance. It seemed as if the teaching was concerned with the students both as human beings with ideas and students who should learn something. Open conversation promotes learning and encourages more students to become involved. I prefer a friendly relationship where I would feel free to consult the instructor and not feel extremely stupid about doing so.

3.3.2 Preferred learning process involves teaching methods that include letting students apply thinking through concrete hands-on experiences.

Example: Those who had the students experience themselves or the ideas that they had through role-playing or other actual hands-on experiences. The students were able to see the effects of their ideas on the other people to find out if their methods work. Disadvantage would be that unless the students used the exact sample of people they were influencing, the sample may show different effects. The best way to find out if your ideas work is to try them.

Example: Lecture combined with laboratory work covering similar material. It provided concrete application of the material currently being studied. Often abstract concepts difficult to grasp became understandable after experimenting with one's own hands, with plenty of time to investigate. The instructor's method was patient, careful, and precise. We learned what can result from careful application of a scientific method.

3.3.3 Preferred learning processes involves teaching methods that focus on students' attempts to truly understand as opposed to memorize.

Example: One that treated students as intelligent beings with a craving to learn. The material was not simple recipes that were memorized but rather demanded periods of concentrated effort on behalf of the student in order to be appreciated. The method results in comprehension of the material presented.

Example: Combining the methods of two instructors I have had - allow the student to drop a test or two thereby alleviating pressure of every test, and giving all the time a student wants for taking a test. Pressure was taken off testing and placed more on a student's effort. This follows from my belief that any student can do homework if they try, and that those who do the homework will then do well on tests.

3.3.4 Preferred learning process involves teaching methods that constitute an organized presentation on the teacher's part.

Example: The instructors who had the best effect on students were always well organized. They usually had good rapport with the students and were able to motivate them to learn or instill some excitement in them concerning the subject matter. It is much easier to learn when a teacher is organized and does not jump from one subject to another. A logical, concise, and organized presentation is essential if learning is to occur.

3.3.5 Preferred learning process involves teaching methods that allow students to express themselves in class, thus becoming more interested through involvement.

Example: This method was beneficial to me because I felt as if I personally could make contributions to the class if I shared my viewpoint. I didn't feel as if what I said was stupid. This creates a feeling of excitement about learning information.

Example: Instructors who presented information in lectures that weren't straight out of the text. Information that expanded on the readings. It helps keep the student interested and from feeling that they could just as easily be doing the learning on their own.

3.3.6 Preferred learning process involves teaching methods that are efficient.

Example: Courses with quizzes each week, keeping us up to date on how much we're learning. Student participation in small classes, but not in large ones because there isn't enough time to cover the material efficiently.

3.3.7 Preferred learning process involves teaching methods that emphasize applying information to daily life.

Example: The method of instruction that was most beneficial was discussing the material, making it interesting, talking about how it deals with issues today, and applying it to our lives. Applying the information to our lives and our world today made it more understandable and kept students interested in the material. An example is teaching history. Show how history has affected our lives today and what we can learn from that.

Position Four

In Position Four the learner no longer automatically regards the instructor as an expert because truth is not known. The learner's focus shifts to a method of thinking, which the instructor models. Greater interaction is expected and preferred both with the instructor and peers. Exploring ideas and sharing opinions is regarded as important, and the teacher is expected to respect students' ideas. The instructor should strive to make the classroom a forum for an exchange of ideas. The oppositional Four does not accept the importance of learning a method of thinking but rather views learning as a game to be played. The instructor is perceived as having no more knowledge than the students, and oppositional students rebel against the instructor and what they perceive as the game of learning.

Reasoning Structures

3.4.1 Preferred methods foster opportunity for students to share their opinions.

Example: The one who let me think out my own solution. Let me gather and make up my own opinions. It taught me how to think about other people better, and hear their opinions. When someone gives their opinion I hear it with an open mind. This gives everyone a chance to express themselves.

3.4.2 Preferred methods include alternatives to instructor's perspectives; the instructor should respect others' opinions.

Example: Method that used a firm basis to which to refer to study. A class with a teacher secure of himself and knowledgeable. Lecture followed by questions and open discussions. A lecture with questions by teacher or students: It becomes a

trampoline from which you get interested and jump to other classes or books to find answers. If the teacher is not secure, there are so many questions that it becomes a market of questions with no direction. I learned that you should consider a subject from many points of view, not only one. You should be interested by what you do and be open to others' opinions. Students should respect the teacher's opinions and he should respect mine.

3.4.3 Preferred methods allow students to define their own learning goals.

Example: I enjoyed instructors who were well prepared for lecture and who presented material in an understandable fashion. I also enjoy contracting for grades, but this requires high approachability on the instructor's part. Contracting for grades made the learning experience very real. Goals were set according to individual needs and objectives.

3.4.4 Preferred methods teach students how to learn and think.

Example: I think the teachers who teach more than just content and expect students to be responsible and creative are the best. Teachers who teach how to learn, how to approach school and schoolwork more effectively. Content is quickly forgotten but attitude and approach are not.

RELATIVISM

With the relativistic viewpoint, the possibility of truth existing returns. Truth is viewed as existing in a context with holders of the truth identified as those who have experience, expertise, and competence in searching for the truth in a given context. Learning is viewed as a genuine search for the truth, a search for evidence to support opinions. The role of the instructor is to engage in the search mutually with students. Abstract teaching methods are preferred, as well as mutual interaction with instructors.

Position Five

Student and instructor become partners in a mutual search for truth. Instructors are viewed as competent in given contexts in which they can provide evidence for thinking. Instructors are expected to be encouraging and accepting of critical questions and alternative viewpoints if supported by evidence.

Reasoning Structures

3.5.1 Preferred methods focus on problem solving or applying knowledge in a context.

Example: Those professors that were structured and expected a lot from their students. Professors that allowed thinking and formulation of concepts in an application sense. It allows me to absorb information, process it, give it some thought, and be able to apply it (problem solving).

3.5.2 Preferred methods involve student and instructor discussion of perspectives in an evaluative manner.

Example: I have always been inspired by teachers who generate a learning atmosphere, that is, relate their subjects to real life, make it possible for students to ask questions, allow discussion to generate around question-answer debate, and provide substantial and decisive feedback to the student. Relating subject to real life equals learning through association. Asking questions equals formulating associations and ideas that can be communicated. Discussion puts individual associations in a social context. Substantial feedback equals substantiation of ideas held and development of new ideas.

3.5.3 Preferred methods allow students to teach and critique each other.

Example: I like classes where the teacher and the student are both able to talk about a subject and exchange ideas. I have enjoyed the classes where the instructor has had some expertise in a particular field and has brought the expertise to the classroom as a means of facilitating discussion among the class members. It is a good opportunity for students to add their own relevant expertise to the thoughts and opinions of the teacher. This makes for a well-rounded discussion and sharing of ideas among a group of learners. The teacher has an institutional obligation to bring in information relevant to a given topic, but all share in the obligation to learn from one another and share ideas.

PROTOCOL # 02206012

DURING THE COURSE OF YOUR STUDIES, YOU HAVE PROBABLY HAD INSTRUCTORS WITH DIFFERENT TEACHING METHODS. AS YOU THINK BACK TO INSTRUCTORS YOU HAVE HAD, DESCRIBE THE METHOD OF INSTRUCTION WHICH HAD THE MOST BENEFICIAL EFFECT ON YOU.

I had a Psychology 101 class my freshman year that I'll never forget. My teacher had a sense of humor like Steve Martin but still maintained a college, academic atmosphere.

WHAT MADE THAT TEACHING METHOD BENEFICIAL? PLEASE BE SPECIFIC AND USE EXAMPLES.

Because he made the class fun to come to. The information was interesting but to keep our attention constant he'd throw in a joke here or there.

WERE THERE ASPECTS OF THAT TEACHING METHOD WHICH WERE NOT BENEFICIAL? IF SO, PLEASE TALK ABOUT SOME OF THE ASPECTS AND WHY THEY WERE NOT BENEFICIAL.

No

WHAT ARE THE MOST IMPORTANT THINGS YOU LEARNED FROM THE INSTRUCTOR'S METHOD OF TEACHING?

Keep a good sense of humor. Don't let little things upset you and still be able to get an important point across.

PLEASE DESCRIBE THE TYPE OF RELATIONSHIP WITH AN INSTRUCTOR THAT WOULD HELP YOU TO LEARN BEST AND EXPLAIN WHY.

A friendly but not too personal relationship. There needs to be a friendly, free of tension relationship without entering a personal relationship.

PROTOCOL # 02206170

DURING THE COURSE OF YOUR STUDIES, YOU HAVE PROBABLY HAD INSTRUCTORS WITH DIFFERENT TEACHING METHODS. AS YOU THINK BACK TO INSTRUCTORS YOU HAVE HAD, DESCRIBE THE METHOD OF INSTRUCTION WHICH HAD THE MOST BENEFICIAL EFFECT ON YOU.

Depending on the material facts, figures, procedures should be done in a very basic step by step format covering all major points. Theory is best taught by examples, illustrations and basic language.

WHAT MADE THAT TEACHING METHOD BENEFICIAL? PLEASE BE SPECIFIC AND USE EXAMPLES.

Visuals and being able to relate to the material by contrasting my own experiences.

WERE THERE ASPECTS OF THAT TEACHING METHOD WHICH WERE NOT BENEFICIAL? IF SO, PLEASE TALK ABOUT SOME OF THE ASPECTS AND WHY THEY WERE NOT BENEFICIAL.

Having to memorize equations, lists and material that need not be stressed because of its ready access and/or low usage.

WHAT ARE THE MOST IMPORTANT THINGS YOU LEARNED FROM THE INSTRUCTOR'S METHOD OF TEACHING?

How to take notes in a logical way because of how the lecture was given (logically).

PLEASE DESCRIBE THE TYPE OF RELATIONSHIP WITH AN INSTRUCTOR THAT WOULD HELP YOU TO LEARN BEST AND EXPLAIN WHY.

I feel an instructor should respect you as you do him. He should be friendly but keep the dignity that he so deserves because he is trained and an expert. He should care about his students and be available for conferences.

PROTOCOL # 05210024

DURING THE COURSE OF YOUR STUDIES, YOU HAVE PROBABLY HAD INSTRUCTORS WITH DIFFERENT TEACHING METHODS. AS YOU THINK BACK TO INSTRUCTORS YOU HAVE HAD, DESCRIBE THE METHOD OF INSTRUCTION WHICH HAD THE MOST BENEFICIAL EFFECT ON YOU.

A coordination of lecture and class discussion - where the professor outlines a concept or idea and the class generates criticism and other issues and perspectives. At times, class members presented part of the material to the rest of the class and facilitated discussion.

WHAT MADE THAT TEACHING METHOD BENEFICIAL? PLEASE BE SPECIFIC AND USE EXAMPLES.

The instructor gave a basis for understanding the foundation of the issue or material and the class elaborated on it. Helped further build the foundation and structure. Fleshed out the issues.

WERE THERE ASPECTS OF THAT TEACHING METHOD WHICH WERE NOT BENEFICIAL? IF SO, PLEASE TALK ABOUT SOME OF THE ASPECTS AND WHY THEY WERE NOT BENEFICIAL.

It is more time consuming than straight lecture but I think the time spent is generally worthwhile.

WHAT ARE THE MOST IMPORTANT THINGS YOU LEARNED FROM THE INSTRUCTOR'S METHOD OF TEACHING?

It strengthened by ability to analyze and be creative and to go beyond a given concept to generate related or new ideas.

PLEASE DESCRIBE THE TYPE OF RELATIONSHIP WITH AN INSTRUCTOR THAT WOULD HELP YOU TO LEARN BEST AND EXPLAIN WHY.

As long as I respect the instructor, i.e. think that he/she is familiar with and interested in the subject material and prepares for class and is willing to answer questions and engage in discussion, it doesn't matter much to me if the instructor is "nice" or "entertaining," etc.

PROTOCOL # 02205105

DURING THE COURSE OF YOUR STUDIES, YOU HAVE PROBABLY HAD INSTRUCTORS WITH DIFFERENT TEACHING METHODS. AS YOU THINK BACK TO INSTRUCTORS YOU HAVE HAD, DESCRIBE THE METHOD OF INSTRUCTION WHICH HAD THE MOST BENEFICIAL EFFECT ON YOU.

I learned most from classes that taught me a way of doing something, then gave you a chance to try it out.

WHAT MADE THAT TEACHING METHOD BENEFICIAL? PLEASE BE SPECIFIC AND USE EXAMPLES.

Example was English class. It was explained how to write a paper, then we wrote the paper. Chemistry we had lecture then lab.

WERE THERE ASPECTS OF THAT TEACHING METHOD WHICH WERE NOT BENEFICIAL? IF SO, PLEASE TALK ABOUT SOME OF THE ASPECTS AND WHY THEY WERE NOT BENEFICIAL.

The lectures have a tendency to be boring.

WHAT ARE THE MOST IMPORTANT THINGS YOU LEARNED FROM THE INSTRUCTOR'S METHOD OF TEACHING?

That I must attend class everyday, prepared for class and ready to listen.

PLEASE DESCRIBE THE TYPE OF RELATIONSHIP WITH AN INSTRUCTOR THAT WOULD HELP YOU TO LEARN BEST AND EXPLAIN WHY.

I like an instructor that is friendly. I like to be able to feel free to ask questions and not be made to feel stupid.

PROTOCOL # 02205027

DURING THE COURSE OF YOUR STUDIES, YOU HAVE PROBABLY HAD INSTRUCTORS WITH DIFFERENT TEACHING METHODS. AS YOU THINK BACK TO INSTRUCTORS YOU HAVE HAD, DESCRIBE THE METHOD OF INSTRUCTION WHICH HAD THE MOST BENEFICIAL EFFECT ON YOU.

All the college teachers I have had lectured. The teachers with exceptional speaking skills and a sense of humor always communicated the subject matter the best. More importantly, the instructors who cared about the students, wanted them to learn the subject, and who enjoyed the subject themselves were always the most beneficial teachers. Getting the students involved with the teaching method always improves the quality of teaching.

WHAT MADE THAT TEACHING METHOD BENEFICIAL? PLEASE BE SPECIFIC AND USE EXAMPLES.

The teaching method was beneficial because the students got interested in the class and would listen to the lecture more carefully. For example, Dr. Bursten was an excellent chemistry teacher. He would ask the students questions during lecture and he would make that extra effort of always being willing to explain a concept more clearly during lecture.

WERE THERE ASPECTS OF THAT TEACHING METHOD WHICH WERE NOT BENEFICIAL? IF SO, PLEASE TALK ABOUT SOME OF THE ASPECTS AND WHY THEY WERE NOT BENEFICIAL.

There wasn't anything about the teaching method that was not beneficial. Perhaps, for a few students, questions asked during lecture was tedious, but I see this method to be good since several people probably have the same question

WHAT ARE THE MOST IMPORTANT THINGS YOU LEARNED FROM THE INSTRUCTOR'S METHOD OF TEACHING?

That having a genuine interest in the students and the subject matter and being able to communicate well are extremely important characteristics of a good teacher. Anyone can repeat facts in front of a class, but to teach is to get involved with the students.

PLEASE DESCRIBE THE TYPE OF RELATIONSHIP WITH AN INSTRUCTOR THAT WOULD HELP YOU TO LEARN BEST AND EXPLAIN WHY.

A friendly, respectful relationship. I need to feel comfortable taking to my teacher and I want him/her to know alot more about the subject than I do. I respect teachers who have a thorough knowledge of the subject and want to help the student learn.

PROTOCOL # 02106073

DURING THE COURSE OF YOUR STUDIES, YOU HAVE PROBABLY HAD INSTRUCTORS WITH DIFFERENT TEACHING METHODS. AS YOU THINK BACK TO INSTRUCTORS YOU HAVE HAD, DESCRIBE THE METHOD OF INSTRUCTION WHICH HAD THE MOST BENEFICIAL EFFECT ON YOU.

Down to earth, straightforward approach. Don't try to impress students with tons of information that later is not even relevant to the course. A good sense at humor mixed through teaching never hurt anything either.

WHAT MADE THAT TEACHING METHOD BENEFICIAL? PLEASE BE SPECIFIC AND USE EXAMPLES.

The above atmosphere lends itself to easier comprehension and a more relaxed atmosphere.

WERE THERE ASPECTS OF THAT TEACHING METHOD WHICH WERE NOT BENEFICIAL? IF SO, PLEASE TALK ABOUT SOME OF THE ASPECTS AND WHY THEY WERE NOT BENEFICIAL.

WHAT ARE THE MOST IMPORTANT THINGS YOU LEARNED FROM THE INSTRUCTOR'S METHOD OF TEACHING?

I comprehended and retained the material presented and it boosts your attitude towards being a student.

PLEASE DESCRIBE THE TYPE OF RELATIONSHIP WITH AN INSTRUCTOR THAT WOULD HELP YOU TO LEARN BEST AND EXPLAIN WHY.

An instructor that is human, not pompous or egotistical. It is very hard for me to learn from someone I do not respect. Instructors that feel students have IQ's just above that of mushrooms have more to learn than any student. Many portray this attitude I'm sorry to say.

PROTOCOL # 03109001

DURING THE COURSE OF YOUR STUDIES, YOU HAVE PROBABLY HAD INSTRUCTORS WITH DIFFERENT TEACHING METHODS. AS YOU THINK BACK TO INSTRUCTORS YOU HAVE HAD, DESCRIBE THE METHOD OF INSTRUCTION WHICH HAD THE MOST BENEFICIAL EFFECT ON YOU.

The class involvement method where the class participates in "project" (in class) after the instructor had lectured on the subject. Then, instructor goes over the "project" with the class.

WHAT MADE THAT TEACHING METHOD BENEFICIAL? PLEASE BE SPECIFIC AND USE EXAMPLES.

The subject matter was reinforced. Lecturing is not enough. This instructor gave examples of the subject and let the class evaluate, examine, participate in exercises and then reviewed it.

WERE THERE ASPECTS OF THAT TEACHING METHOD WHICH WERE NOT BENEFICIAL? IF SO, PLEASE TALK ABOUT SOME OF THE ASPECTS AND WHY THEY WERE NOT BENEFICIAL.

WHAT ARE THE MOST IMPORTANT THINGS YOU LEARNED FROM THE INSTRUCTOR'S METHOD OF TEACHING?

I learn best when things are reviewed that same day. And that involvement with other class members helps to learn the subject and lessens anxiety.

PLEASE DESCRIBE THE TYPE OF RELATIONSHIP WITH AN INSTRUCTOR THAT WOULD HELP YOU TO LEARN BEST AND EXPLAIN WHY.

An open one where the instructor tells you exactly what he/she wants from the start and is available to help if there is trouble.

PROTOCOL # 02106075

DURING THE COURSE OF YOUR STUDIES, YOU HAVE PROBABLY HAD INSTRUCTORS WITH DIFFERENT TEACHING METHODS. AS YOU THINK BACK TO INSTRUCTORS YOU HAVE HAD, DESCRIBE THE METHOD OF INSTRUCTION WHICH HAD THE MOST BENEFICIAL EFFECT ON YOU.

The teacher that guides the students to teach themselves. Most honor classes are this way. The professor helps to lead class discussions.

WHAT MADE THAT TEACHING METHOD BENEFICIAL? PLEASE BE SPECIFIC AND USE EXAMPLES.

It gets the students to think and verbalize what they think. It teaches the student to analyze.

WERE THERE ASPECTS OF THAT TEACHING METHOD WHICH WERE NOT BENEFICIAL? IF SO, PLEASE TALK ABOUT SOME OF THE ASPECTS AND WHY THEY WERE NOT BENEFICIAL.

Sometimes the professor will only lead the discussion to the opinion of his own and make the student who feels different seem foolish.

WHAT ARE THE MOST IMPORTANT THINGS YOU LEARNED FROM THE INSTRUCTOR'S METHOD OF TEACHING?

How to analyze situations.

PLEASE DESCRIBE THE TYPE OF RELATIONSHIP WITH AN INSTRUCTOR THAT WOULD HELP YOU TO LEARN BEST AND EXPLAIN WHY.

One is which the professor is willing to answer questions and give ideas.

PROTOCOL # 03207058

DURING THE COURSE OF YOUR STUDIES, YOU HAVE PROBABLY HAD INSTRUCTORS WITH DIFFERENT TEACHING METHODS. AS YOU THINK BACK TO INSTRUCTORS YOU HAVE HAD, DESCRIBE THE METHOD OF INSTRUCTION WHICH HAD THE MOST BENEFICIAL EFFECT ON YOU.

I have not had any one teacher here that fits what I would consider having the best method. However, I can put together different methods that I've experienced from different teachers into what I would consider effective and beneficial. First of all I suggest smaller class size so that students can get to know each other better and so that the teacher can give each student more attention, especially I would suggest lecturing on the part of the teacher - information that expands on and explains difficult textbook material, and information that isn't in the textbooks but is applicable to the class objectives. Relevant films, slides, and guest speakers can be helpful to learning. Class input is important.

WHAT MADE THAT TEACHING METHOD BENEFICIAL? PLEASE BE SPECIFIC AND USE EXAMPLES.

It would be beneficial in that the student could participate more and not just sit passively and write their hands off in an effort to keep up with the teacher. It would allow for active listening and a more interesting class, hence better learning and more knowledge would be retained. Teachers are not able to know everything in what they teach, that's why it is good to call in experts to develop ideas and knowledge discussed in class or in the textbooks. My Women's Studies class (294A) fit this the best. The teachers (there were two) lectured and they also allowed for and encouraged class participation. They brought in about 6 speakers that quarter who were "experts" in their field. It was great for the students because we could ask them questions openly and the atmosphere was very conducive to learning and very non-threatening. We could sit and listen or we could throw in our own ideas to be disputed. It was also that way during class discussions.

WERE THERE ASPECTS OF THAT TEACHING METHOD WHICH WERE NOT BENEFICIAL? IF SO, PLEASE TALK ABOUT SOME OF THE ASPECTS AND WHY THEY WERE NOT BENEFICIAL.

Probably the one drawback to this method is that sometimes the students or teacher got off on a different subject, and not one outlined on the syllabus. I believe that if the teacher would set forth some discussion on guidelines or direct the discussions back to the subject at hand then the problem could be eliminated. Also, the students could help redirect conversations that were out of focus that were started by the teacher or by other students. It would be a different situation than most of us are used to, but a better and refreshing one, in the long run.

WHAT ARE THE MOST IMPORTANT THINGS YOU LEARNED FROM THE INSTRUCTOR'S METHOD OF TEACHING?

That we can learn from the experience of other students and other experts without ever leaving the classroom, and it can be a very enjoyable experience. Students and teachers can learn from each other in a conducive environment where each are giving and taking in. Learning can be fun, relaxed, and yet it can be something that we take home with us, remember, and talk with others outside of class about (which I found myself doing often as I really believe I learned a lot from the class, and wanted to share my information with friends).

PLEASE DESCRIBE THE TYPE OF RELATIONSHIP WITH AN INSTRUCTOR THAT WOULD HELP YOU TO LEARN BEST AND EXPLAIN WHY.

I would like them to know and call be by my first name, and I would like to feel that I could come in and talk to them if I needed extra help with something, or if I wanted to discuss some class work with them. I've found that with the teachers that I've gotten a chance to talk with outside of class, that I've enjoyed them more, the class more and have done better in the class. Teachers seem to be more apt to take extra time to help you if they've seen you in their class, and if they know your name and talked with you before.

PROTOCOL # 05108055

DURING THE COURSE OF YOUR STUDIES, YOU HAVE PROBABLY HAD INSTRUCTORS WITH DIFFERENT TEACHING METHODS. AS YOU THINK BACK TO INSTRUCTORS YOU HAVE HAD, DESCRIBE THE METHOD OF INSTRUCTION WHICH HAD THE MOST BENEFICIAL EFFECT ON YOU.

Up to recently, the most beneficial method of instruction came from straightforward instructors who provided all the facts and information and told students what they should know about a given subject.

WHAT MADE THAT TEACHING METHOD BENEFICIAL? PLEASE BE SPECIFIC AND USE EXAMPLES.

It was clear and precise and uncomplicated. Students knew exactly what to study and weren't confused by opposing points of view.

WERE THERE ASPECTS OF THAT TEACHING METHOD WHICH WERE NOT BENEFICIAL? IF SO, PLEASE TALK ABOUT SOME OF THE ASPECTS AND WHY THEY WERE NOT BENEFICIAL.

It didn't allow or encourage students to establish their own beliefs with respect to why something might have occurred.

WHAT ARE THE MOST IMPORTANT THINGS YOU LEARNED FROM THE INSTRUCTOR'S METHOD OF TEACHING?

Factual information such as names, dates and places.

PLEASE DESCRIBE THE TYPE OF RELATIONSHIP WITH AN INSTRUCTOR THAT WOULD HELP YOU TO LEARN BEST AND EXPLAIN WHY.

A challenge and support relationship where the instructor would encourage me to achieve and reinforce me when I do.

PROTOCOL # 03107059

DURING THE COURSE OF YOUR STUDIES, YOU HAVE PROBABLY HAD INSTRUCTORS WITH DIFFERENT TEACHING METHODS. AS YOU THINK BACK TO INSTRUCTORS YOU HAVE HAD, DESCRIBE THE METHOD OF INSTRUCTION WHICH HAD THE MOST BENEFICIAL EFFECT ON YOU.

The style that has worked best for me is a dialogue between teachers and student. A class with under 12 students, the teacher can actually discuss issues with each student. The teacher asks questions that make us think and search for implications and causes and concepts.

WHAT MADE THAT TEACHING METHOD BENEFICIAL? PLEASE BE SPECIFIC AND USE EXAMPLES.

I felt so involved with the subject, I felt myself pulled into areas I'd never been before. I wasn't memorizing, I was learning, my feelings, opinions, values were actually changing right there in the classroom. It affected my life.

WERE THERE ASPECTS OF THAT TEACHING METHOD WHICH WERE NOT BENEFICIAL? IF SO, PLEASE TALK ABOUT SOME OF THE ASPECTS AND WHY THEY WERE NOT BENEFICIAL.

Truly, I can not think of anything about those experiences that wasn't beneficial.

WHAT ARE THE MOST IMPORTANT THINGS YOU LEARNED FROM THE INSTRUCTOR'S METHOD OF TEACHING?

Although I didn't learn it originally from the instructor, the whole approach of searching for the implications of an idea was reinforced. What does it mean to hold this or that idea or to follow this or that solution to a problem, etc.

PLEASE DESCRIBE THE TYPE OF RELATIONSHIP WITH AN INSTRUCTOR THAT WOULD HELP YOU TO LEARN BEST AND EXPLAIN WHY.

A one on one or very small group would be ideal because this would facilitate personal interaction. The instructor and student could pursue a line of thought to its end.

PROTOCOL # 03206096

DURING THE COURSE OF YOUR STUDIES, YOU HAVE PROBABLY HAD INSTRUCTORS WITH DIFFERENT TEACHING METHODS. AS YOU THINK BACK TO INSTRUCTORS YOU HAVE HAD, DESCRIBE THE METHOD OF INSTRUCTION WHICH HAD THE MOST BENEFICIAL EFFECT ON YOU.

Teacher was honest, straightforward, firm and concerned about the student's learning. Goals were clear. There was guidance, no "wishy washiness," allowing creativity and practical conceptualization in assignments (projects, papers, exams, discussions).

WHAT MADE THAT TEACHING METHOD BENEFICIAL? PLEASE BE SPECIFIC AND USE EXAMPLES.

Teacher allowed or made the students use what they learned and memorized (from books and class) in ways that students can apply and use creativity in their profession to be or areas of life.

WERE THERE ASPECTS OF THAT TEACHING METHOD WHICH WERE NOT BENEFICIAL? IF SO, PLEASE TALK ABOUT SOME OF THE ASPECTS AND WHY THEY WERE NOT BENEFICIAL.

When teacher over identifies with student and just about "babies" the students.

WHAT ARE THE MOST IMPORTANT THINGS YOU LEARNED FROM THE INSTRUCTOR'S METHOD OF TEACHING?

Practicality.

Critical/constructive thinking.

Concern.

PLEASE DESCRIBE THE TYPE OF RELATIONSHIP WITH AN INSTRUCTOR THAT WOULD HELP YOU TO LEARN BEST AND EXPLAIN WHY.

1. Teacher and student
2. Honesty (roles defined, faults revealed)
3. Fairness, firmness (sets limits)
4. Communicates well (listens, advises)
5. Caring (give and take)
6. Values learning highly

PROTOCOL # 01108143

DURING THE COURSE OF YOUR STUDIES, YOU HAVE PROBABLY HAD INSTRUCTORS WITH DIFFERENT TEACHING METHODS. AS YOU THINK BACK TO INSTRUCTORS YOU HAVE HAD, DESCRIBE THE METHOD OF INSTRUCTION WHICH HAD THE MOST BENEFICIAL EFFECT ON YOU.

1. Providing enthusiasm for producing creative products.

2. Creating real life scenarios for learning.

3. Providing activities that are perceived as being fun.

4. Providing a good example for students: talented artist as teacher

WHAT MADE THAT TEACHING METHOD BENEFICIAL? PLEASE BE SPECIFIC AND USE EXAMPLES.

1. Enthusiasm breeds energy and interest.

2. The dynamics of real life is memorable.

3. Fun, positive activities are easily remembered.

4. Students respond to positive examples.

WERE THERE ASPECTS OF THAT TEACHING METHOD WHICH WERE NOT BENEFICIAL? IF SO, PLEASE TALK ABOUT SOME OF THE ASPECTS AND WHY THEY WERE NOT BENEFICIAL.

Some students who are less "other-directed" become alienated by such enthusiasm.

WHAT ARE THE MOST IMPORTANT THINGS YOU LEARNED FROM THE INSTRUCTOR'S METHOD OF TEACHING?

How enthusiasm does breed energy and interest. The energy allows for constructive action. Interest is the first step in questioning and learning.

PLEASE DESCRIBE THE TYPE OF RELATIONSHIP WITH AN INSTRUCTOR THAT WOULD HELP YOU TO LEARN BEST AND EXPLAIN WHY.

Common interest. Personal exchange of ideas from a similar basis can provide some security in learning.

PROTOCOL # 02107137

DURING THE COURSE OF YOUR STUDIES, YOU HAVE PROBABLY HAD INSTRUCTORS WITH DIFFERENT TEACHING METHODS. AS YOU THINK BACK TO INSTRUCTORS YOU HAVE HAD, DESCRIBE THE METHOD OF INSTRUCTION WHICH HAD THE MOST BENEFICIAL EFFECT ON YOU.

Honors Biology - class participation and involvement especially in lab. Got to know all 30 to 40 classmates quite well and learned a lot. Also lectures were beyond text material.

WHAT MADE THAT TEACHING METHOD BENEFICIAL? PLEASE BE SPECIFIC AND USE EXAMPLES.

It challenged students to develop ideas beyond basics especially through guest lectures and reports.

WERE THERE ASPECTS OF THAT TEACHING METHOD WHICH WERE NOT BENEFICIAL? IF SO, PLEASE TALK ABOUT SOME OF THE ASPECTS AND WHY THEY WERE NOT BENEFICIAL.

Required student to be independent to large degree and also experience depended on students willingness to participate.

WHAT ARE THE MOST IMPORTANT THINGS YOU LEARNED FROM THE INSTRUCTOR'S METHOD OF TEACHING?

Present opportunities to ambitious students and they will succeed.

Freedom allows for student to develop own initiative.

PLEASE DESCRIBE THE TYPE OF RELATIONSHIP WITH AN INSTRUCTOR THAT WOULD HELP YOU TO LEARN BEST AND EXPLAIN WHY.

Doing research with an instructor and being in some difficult and challenging classes under him.

PROTOCOL # 01109137

DURING THE COURSE OF YOUR STUDIES, YOU HAVE PROBABLY HAD INSTRUCTORS WITH DIFFERENT TEACHING METHODS. AS YOU THINK BACK TO INSTRUCTORS YOU HAVE HAD, DESCRIBE THE METHOD OF INSTRUCTION WHICH HAD THE MOST BENEFICIAL EFFECT ON YOU.

Discussion is often, but not always, a good method. Occasionally, students need a good model of rhetoric and forceful analysis. The lecture is an underrated tool. I like to see "seams" in a teacher's approach - distinct changes in approaches.

WHAT MADE THAT TEACHING METHOD BENEFICIAL? PLEASE BE SPECIFIC AND USE EXAMPLES.

3 particularly good courses came to mind: a Shakespeare class with panel presentations, lectures, and discussion sessions; an introduction to graduate study with a similar mix; and a long seminar on medieval allegory which stressed concepts using a similar mix.

WERE THERE ASPECTS OF THAT TEACHING METHOD WHICH WERE NOT BENEFICIAL? IF SO, PLEASE TALK ABOUT SOME OF THE ASPECTS AND WHY THEY WERE NOT BENEFICIAL.

Students will occasionally waste the time of fellow students. Sometimes a teacher will not be a competent lecturer.

WHAT ARE THE MOST IMPORTANT THINGS YOU LEARNED FROM THE INSTRUCTOR'S METHOD OF TEACHING?

Always have a plan.

PLEASE DESCRIBE THE TYPE OF RELATIONSHIP WITH AN INSTRUCTOR THAT WOULD HELP YOU TO LEARN BEST AND EXPLAIN WHY.

Intellectual camaraderie. We are all traveling through the dark together but maybe this time, even here, something important will happen.

CHAPTER TWELVE

DOMAIN FOUR RATING MANUAL: ROLE OF PEERS IN THE LEARNING PROCESS

DOMAIN FOUR OVERVIEW

Position One

No useful role perceived.

Position Two

To ask questions to elicit answers from teacher or to give answers to make learning more relaxed and to remember information.

Position Three

To ask questions and express opinions to increase interest, hear new ideas, explore and think through areas to understand.

Position Four

To share viewpoints to gain a diversity of perspectives, to learn how to think independently.

Position Five

To share and critically evaluate perspectives based on the degree to which they are supported by evidence.

MAJOR DISTINCTIONS

Whether peers have a role or not.

The nature and purpose of participation: Participation at Position Two is really recitation. At Position Three it is expressing ideas for interest and exploration but not really consideration (purpose is exploring the unknowns). At Position Four it is hearing others and formulating one's own ideas, and at Position Five it is critical evaluation of ideas because better or worse ideas exist.

LANGUAGE CAUTIONS

The words participation and involvement are commonly used by respondents in all positions. It is essential to determine the true meaning of these words in order to distinguish between various perspectives described above.

DOMAIN FOUR POSITION DESCRIPTIONS

Domain four focuses on the role of peers in the learning process. Their role is dependent on the learner's view of knowledge and the learning process. Changes occur across positions as described below.

DUALISM

In Positions One and Two authorities are viewed as holders of the truth. Because learning is a matter of acquiring the truth, student participation is not viewed as useful. The dualist wants to hear the truth from the instructor and not be confused by discussion. Although students' asking for clarification is seen as positive, discussion is seen as confusing, distracting, and often a waste of time. The dualist sees learning directly from the instructor as more beneficial. Relationships among members of the class are not a focus for the dualist.

Position One

Involvement consists of listening to authorities and getting the right answers. Questions should be direct attempts to get the right answers. Additional discussion is seen as a waste of time. Talking is often defined as unrelated chatter among students.

Reasoning Structures

4.1.1 Peers do not have a role in learning.

> Example: I prefer classes where students do not talk. I want as much of the instructor's knowledge as possible. Many students ask questions because they come to class unprepared and so take time away from obtaining information from the instructor. Perhaps a student might have considered a very important aspect which has not been clarified.

Position Two

Peers can have a role in the learning process at Position Two, although it is limited to asking questions for clarification, discussing in order to find answers for oneself, providing a

more relaxed learning atmosphere, or making class interesting enough to pay attention. The instructor is still responsible for maintaining control of the class so that student participation doesn't get confusing.

Reasoning Structures

4.2.1 Role of peers is to ask questions to clarify information or bring up questions others do not think of.

Example: I prefer classes in which the students do a lot of talking because someone might bring up something I wasn't sure about or didn't think of asking myself.

4.2.2 Talking or participation (asking questions, giving answers, ideas, opinions) are for the purpose of making class interesting so that one can pay attention in order to learn.

Example: I prefer classes where there is a lot of talking. Listening to a professor the entire class time can get boring. Students' asking questions and giving opinions gets them involved and helps them maintain interest. Sometimes things can get carried away and students may get off the subject.

4.2.3 Students' talking (or not talking) in class leads to more relaxed atmosphere in which students feel more comfortable asking questions, thereby making learning easier.

Example: I prefer classes with a lot of talking. The class is more at ease and enjoyable. People are more likely to ask questions. In addition I like working together in groups outside of class to work on problems.

Example: I like to be relaxed and have a minimal amount of talking. If both teacher and student are alway talking at the same time I couldn't concentrate. I like a more relaxed classroom atmosphere that makes the teacher seem more comfortable to be around.

Example: 50/50. I think it is good to have student involvement but I don't want to be forced to participate. People feel free to participate but are not pressured to and so can relax and enjoy the class.

4.2.4 Role of peers should be minimal so as not to confuse what the teacher is trying to teach.

Example: I prefer classes where students don't talk much or talk a lot if they know what they are talking about. I prefer the not talking because I can concentrate more without students confusing me. I like the students participating if they aren't going to turn things around and confuse the other students.

4.2.5 Role of peers is to study together because some students pick up knowledge (right answers) that others do not and can explain it in a simpler way than the instructor.

Example: I prefer small study groups. Sometimes it is easier to learn from a student who understands the material and is able to explain it to others.

Example: I prefer student talking. It helps me understand more to have a student discuss the subject more on my level. It isn't quite as complex and confusing. The disadvantage is that the student might be incorrect.

4.2.6 Role of peers involves class discussion in order to make information easier to remember.

Example: I like a lot of talking. If the subject is discussed, it is easier to remember. A person remembers that someone said this and someone else said that. You can also remember which things were wrong.

4.2.7 Student involvement helps the professor know what the students know.

Example: I prefer students doing a lot of talking. Because when an instructor is the only one that speaks, he may go too fast or not get points across, but when students participate, it gives the instructor more of an insight of where the student is coming from, and he may be able to give additional help or examples. The instructor is on a more level base with the students and can better understand where they are at in the lecture.

TRANSITION

Student involvement becomes increasingly acceptable as it relates to learning a process and relationships. The focus on process that accompanies the rise of uncertainty allows class discussion to be a part of the process. During the transition the process changes from one that ensures the truth will be found to one that focuses on learning how to think. Relationships gain increasing importance as authorities are no longer the source of all knowledge.

Position Three

Student involvement is a bit more acceptable in Position Three because even the instructor may now know all the answers. Peer interaction is seen as legitimate as it relates to discovering the process of finding the truth, such as in small group discussions. Interaction has a number of advantages as long as the instructor keeps the class under control and has the knowldege that he or she should share with the class. The processes below become the focus of peer interactions in learning.

Reasoning Structures

4.3.1 By talking students become more involved in the subject matter, are more interested in the topic, and thus learn better. Simply paying attention is no longer sufficient; one must attempt to truly understand.

Example: I prefer classes where students do a lot of talking because it gives the student the chance to be personally involved with the lecture and his classmates. If he

talks about the subject then he is learning that much better. Because the student feels a part of the lesson, it becomes more important. The class can go off on a tangent. One student can mislead or confuse others.

Example: Some talking. A better understanding of material being taught is possible when there is a feeling of enjoying learning. Less information may be passed along though.

4.3.2 Peer involvement helps teacher and students work together effectively in seeking the answers.

Example: I prefer high participation as long as it is controlled. I feel that student questions help the instructor to fine tune his or her teaching to meet the needs of this particular class and help the more shy students to clarify their understanding. It keeps instructors thinking and students practiced in inquiry and critical thinking.

4.3.3 Involvement is a method of providing exposure to new ideas.

Example: I prefer talking because when other students are involved in the beginning more students will eventually tell their opinion. You get a chance to hear what others are wondering about. If your thinking was wrong and someone else says the same thing, you learn from your mistakes. Or if a person says something that you never thought of.

4.3.4 Involvement can be a way of helping students further explore and think through ideas and concepts as a process for understanding.

Example: Students do equal amount of listening and talking. Because professors have a lot of valuable knowledge, but students should not be stifled. They should be able to probe deeper and ask questions in order to formulate ideas and concepts.

4.3.5 Involvement depends on the subject. In the category of knowledge that is known, input is less important. In the category of knowledge that is unknown, input is useful.

Example: Depends on the subject. With technical information student input is not preferred. But with theoretical I like more student input. In technical classes lots of student input can be distracting and detract from the point. In theoretical it is good to experience different viewpoints. I like others to express relevant experience and observation, share understanding of difficult concepts.

4.3.6 Involvement is preferable if it can be accomplished in an efficient manner.

Example: I prefer where students don't talk. I like to listen to the instructor because he is the one that is knowledgeable on the subject, although I do like the addition of discussion groups. The advantage is that I get more information. The dis-

advantage is that I don't get to hear the opinions of others. I like discussion groups where we can find out opinions of others, but not during the lecture.

Example: It depends on the class. In a large class it is hard to get through the subject matter if everyone is talking. Participation is better in smaller classes. Participation in small classes doesn't get out of hand and usually pertains to the subject of the class. There isn't enough time in a large class for everyone to speak his or her mind.

Position Four

Peers are as legitimate a source of knowledge as the instructor because everything is uncertain. Everyone's opinion is equally valid, and the learner prefers high student involvement to share opinions. In addition the Position Four person focuses as much on class relationships as on learning. The oppositional Four is likely to be more outspoken regarding his or her notion that students' opinions are as valid as the instructor's because they are rebelling against the instructor and the game of learning. Oppositional Fours could also see student opinion as irrelevant in the game of learning.

Reasoning Structures

4.4.1 Involvement is seen as an opportunity to share viewpoints in the process of gaining a variety of diverse perspectives.

Example: I prefer class participation because students have fresh new ideas and can open up new avenues of insight that don't occur to the instructor. More in-depth learning and understanding by experiencing not only your viewpoint and the viewpoint of the instructor but the viewpoints of everyone else. A disadvantage is that you can get some moron in the class who just aggravates everyone and holds back the learning process.

Example: Talking is a part of my learning strategy. Learning is not only a result of the teacher-student relationship but the student-student relationship as well. Students often learn as much from each other as they learn from the teacher. Shared experiences lead to more different possibilities for subject-related interpretation. Exercise in ideas formulation and communication skills, immediate rewards for effective thinking.

4.4.2 Involvement is seen as positive because teachers and students are equal in terms of their knowledge.

Example: Lots of discussion. It is an active learning where everyone has the chance to learn and grow including the teacher. It is a nonelitist form of learning. People come form many points of view and they deserve respect. It respects the individual intelligence and opinions of each person.

Example: Some talking is useful. The students feel that their questions and comments are important and realize that learning is a two-way, give-and-take situation.

4.4.3 Involvement can be destructive if it is not controlled.

Example: Controlled talk, controlled by instructor decision of appropriateness. Better understanding of problems and concepts would result if instructors had time to formulate and bring forth their knowledge or expertise on a subject. It does limit class participation which could open new ways of thinking.

Example: I prefer that talking be limited to relevant, succinct questions. It allows more time for the instructor to present his views on the material. It is always fun to attack such views. It does not easily allow a class to degenerate or get off the track. I also think it is a more efficient use of class time.

4.4.4 Involvement is a way of learning to think independently.

Example: Lots of students talk. Advantages are that it is more stimulating, more active learning (how can you learn by osmosis?). Learning what you learn not what the teacher tells you. Independent thinking.

RELATIVISM

All knowledge is relative (contextual) so authority rests on expertise acquired through searching for the truth. Because learning is a genuine search for truth and peers are a legitimate source of knowledge, class involvement can be very positive. The learner prefers sharing ideas in a mutual sense with peers and instructors.

Position Five

Classes are a forum for seeking out knowledge and soliciting new perspectives. Participation is an opportunity to critically assess ideas and gather information and evidence to further explore ideas. Detachment to explore ideas objectively occurs. If participation does not meet these criteria, however, it may be seen as negative.

Reasoning Structures

4.5.1 Involvement is useful because it draws on the expertise of the class as well as that of the instructor.

Example: Students have a wide experience base usually. Their ideas offer a new perspective/depth to the content. It recognizes individuals, draws on the expertise of the group, allows for the growth of a class.

4.5.2 Involvement may lead to enhancing the learning process and the content of the course through individual contributions of evidence and reasoned arguments.

Example: I like a mixture depending on the course material. When the instructor is an expert in his field I appreciate his participation. Although the students' participation is also welcome. It is enhanced by the instructor's guidance and comments. Student participation is needed to help discuss and digest material presented. This is extremely important when discussing concepts and ideas.

PROTOCOL # 05207013

DO YOU PREFER CLASSES IN WHICH THE STUDENTS DO A LOT OF TALKING, OR WHERE STUDENTS DON'T TALK VERY MUCH?

The students talk.

WHY DO YOU PREFER THE DEGREE OF STUDENT INVOLVEMENT/PARTICIPATION THAT YOU CHOSE ABOVE?

The students who are learning have many very good and interesting questions. Also, an instructor may forget to add a very important point and the student may be able to ask the question to help the instructor.

WHAT DO YOU SEE AS THE ADVANTAGES OF YOUR PREFERENCE ABOVE?

To help the instructor know how detailed of an explanation of the topic he is covering.

WHAT DO YOU SEE AS THE DISADVANTAGES OF YOUR PREFERENCE?

The instructor may not be able to cover as much as expected.

WHAT TYPE OF INTERACTIONS WOULD YOU LIKE TO SEE AMONG MEMBERS OF A CLASS IN ORDER TO ENHANCE YOUR OWN LEARNING?

In class group labs or homeworks where each student has his or her own input.

PROTOCOL # 03208033

DO YOU PREFER CLASSES IN WHICH THE STUDENTS DO A LOT OF TALKING, OR WHERE STUDENTS DON'T TALK VERY MUCH?

I think there is an appropriate middle ground.

WHY DO YOU PREFER THE DEGREE OF STUDENT INVOLVEMENT/PARTICIPATION THAT YOU CHOSE ABOVE?

I think each class should have a balance of lecture and discussion.

WHAT DO YOU SEE AS THE ADVANTAGES OF YOUR PREFERENCE ABOVE?

Presentation of new knowledge and opportunity to integrate that knowledge.

WHAT DO YOU SEE AS THE DISADVANTAGES OF YOUR PREFERENCE?

None except for need of skilled professor.

WHAT TYPE OF INTERACTIONS WOULD YOU LIKE TO SEE AMONG MEMBERS OF A CLASS IN ORDER TO ENHANCE YOUR OWN LEARNING?

Small groups, exercises within class with meaningful tasks set by professor.

Weekly or biweekly seminars (instead of some of the classes) geared to processing field experiences within theoretical perspectives.

Opportunities to process application of new knowledge.

PROTOCOL # 03107059

DO YOU PREFER CLASSES IN WHICH THE STUDENTS DO A LOT OF TALKING, OR WHERE STUDENTS DON'T TALK VERY MUCH?

Lots of talking.

WHY DO YOU PREFER THE DEGREE OF STUDENT INVOLVEMENT/PARTICIPATION THAT YOU CHOSE ABOVE?

Because the free exchange of ideas is always good. People can change. Ideas can be challenged and tested. New information, that even the instructor was unaware of, could be introduced. It is a dynamic and exciting learning situation.

WHAT DO YOU SEE AS THE ADVANTAGES OF YOUR PREFERENCE ABOVE?

Students are involved in the learning process. It is active not passive. Ideas learned in this way become part of the student's self, they've not forgotten 2 weeks later the way memorized facts are.

WHAT DO YOU SEE AS THE DISADVANTAGES OF YOUR PREFERENCE?

Sometimes the discussion can begin to go in circles or become trivial, but a good teacher can guide the discussion and prevent this.

WHAT TYPE OF INTERACTIONS WOULD YOU LIKE TO SEE AMONG MEMBERS OF A CLASS IN ORDER TO ENHANCE YOUR OWN LEARNING?

I'd like to know how what we are learning affects fellow students and if it doesn't in any way, what are the implications of that. I'd like to hear other peoples ideas and beliefs and be free to challenge them and be challenged by them.

PROTOCOL # 02206012

DO YOU PREFER CLASSES IN WHICH THE STUDENTS DO A LOT OF TALKING, OR WHERE STUDENTS DON'T TALK VERY MUCH?

I prefer classes in which students do a lot of talking.

WHY DO YOU PREFER THE DEGREE OF STUDENT INVOLVEMENT/PARTICIPATION THAT YOU CHOSE ABOVE?

Because of the interaction between the students and teacher. If problems exist, the teacher would be able to pick up on it and help where necessary.

WHAT DO YOU SEE AS THE ADVANTAGES OF YOUR PREFERENCE ABOVE?

A better student-teacher relationship. Students would probably understand the subject better and may be more inclined to ask questions.

WHAT DO YOU SEE AS THE DISADVANTAGES OF YOUR PREFERENCE?

There is a need for teachers lecturing without student input at times. Also, some students may take advantage of a class without structure.

WHAT TYPE OF INTERACTIONS WOULD YOU LIKE TO SEE AMONG MEMBERS OF A CLASS IN ORDER TO ENHANCE YOUR OWN LEARNING?

Partial student interaction with some days being a lecture situation. The emphasis, though should be placed on student interaction.

PROTOCOL # 03209015

DO YOU PREFER CLASSES IN WHICH THE STUDENTS DO A LOT OF TALKING, OR WHERE STUDENTS DON'T TALK VERY MUCH?

Where students talk a lot.

WHY DO YOU PREFER THE DEGREE OF STUDENT INVOLVEMENT/PARTICIPATION THAT YOU CHOSE ABOVE?

It allows students to express own perspectives and permits students to gain insight into different philosophies and frames of reference.

WHAT DO YOU SEE AS THE ADVANTAGES OF YOUR PREFERENCE ABOVE?

Discards the biases of instructors. Allows knowledgeable students to snare information.

WHAT DO YOU SEE AS THE DISADVANTAGES OF YOUR PREFERENCE?

Often creates attitudes among students that are negative to learning.

WHAT TYPE OF INTERACTIONS WOULD YOU LIKE TO SEE AMONG MEMBERS OF A CLASS IN ORDER TO ENHANCE YOUR OWN LEARNING?

Positive, pleasant interactions which allow students to be supportive of each other.

PROTOCOL # 05104066

DO YOU PREFER CLASSES IN WHICH THE STUDENTS DO A LOT OF TALKING, OR WHERE STUDENTS DON'T TALK VERY MUCH?

Where students do a lot of talking.

WHY DO YOU PREFER THE DEGREE OF STUDENT INVOLVEMENT/PARTICIPATION THAT YOU CHOSE ABOVE?

Because it doesn't get boring, where a long lecture does. It also helps to know that others have the same understanding and misunderstandings as you do.

WHAT DO YOU SEE AS THE ADVANTAGES OF YOUR PREFERENCE ABOVE?

Like I said you know that others think the way you do and you don't care to ask about something you don't understand.

WHAT DO YOU SEE AS THE DISADVANTAGES OF YOUR PREFERENCE?

If the instructor doesn't keep control over the discussions you can get off of the subject.

WHAT TYPE OF INTERACTIONS WOULD YOU LIKE TO SEE AMONG MEMBERS OF A CLASS IN ORDER TO ENHANCE YOUR OWN LEARNING?

More classes where there are discussions instead of just lectures day after day.

PROTOCOL # 01208081

DO YOU PREFER CLASSES IN WHICH THE STUDENTS DO A LOT OF TALKING, OR WHERE STUDENTS DON'T TALK VERY MUCH?

I prefer to listen to the lectures, unless there is something I'm not sure of.

WHY DO YOU PREFER THE DEGREE OF STUDENT INVOLVEMENT/PARTICIPATION THAT YOU CHOSE ABOVE?

I want to learn from the instructor as much as he/she has to offer me.

WHAT DO YOU SEE AS THE ADVANTAGES OF YOUR PREFERENCE ABOVE?

I can take in a lot of information.

WHAT DO YOU SEE AS THE DISADVANTAGES OF YOUR PREFERENCE?

I may not hear other points of view.

WHAT TYPE OF INTERACTIONS WOULD YOU LIKE TO SEE AMONG MEMBERS OF A CLASS IN ORDER TO ENHANCE YOUR OWN LEARNING?

Discussion of pros and cons, healthy and constructive arguments. I like to hear differing opinions.

PROTOCOL # 01210089

DO YOU PREFER CLASSES IN WHICH THE STUDENTS DO A LOT OF TALKING, OR WHERE STUDENTS DON'T TALK VERY MUCH?

The former, unless what the students are saying seems irrelevant to the subject at hand.

WHY DO YOU PREFER THE DEGREE OF STUDENT INVOLVEMENT/PARTICIPATION THAT YOU CHOSE ABOVE?

As a teacher educator, I am interested in the perspectives of my peers (who are also bringing practical experiences to bear on theoretical issues)

WHAT DO YOU SEE AS THE ADVANTAGES OF YOUR PREFERENCE ABOVE?

A class where students are involved is usually more dynamic and interesting.

WHAT DO YOU SEE AS THE DISADVANTAGES OF YOUR PREFERENCE?

Sometimes a student might be overbearing or inappropriate and the teacher takes too much of a backseat to the groups' whims.

WHAT TYPE OF INTERACTIONS WOULD YOU LIKE TO SEE AMONG MEMBERS OF A CLASS IN ORDER TO ENHANCE YOUR OWN LEARNING?

Described above.

PROTOCOL # 02205105

DO YOU PREFER CLASSES IN WHICH THE STUDENTS DO A LOT OF TALKING, OR WHERE STUDENTS DON'T TALK VERY MUCH?

I like classes where students talk too.

WHY DO YOU PREFER THE DEGREE OF STUDENT INVOLVEMENT/PARTICIPATION THAT YOU CHOSE ABOVE?

I feel more a part of the class. Students often have the same questions. Some good ideas often surface.

WHAT DO YOU SEE AS THE ADVANTAGES OF YOUR PREFERENCE ABOVE?

Again, you learn a lot. It keeps the class interesting so you pay more attention.

WHAT DO YOU SEE AS THE DISADVANTAGES OF YOUR PREFERENCE?

Sometimes the whole topic of the lesson doesn't get covered. The class can be talkative.

WHAT TYPE OF INTERACTIONS WOULD YOU LIKE TO SEE AMONG MEMBERS OF A CLASS IN ORDER TO ENHANCE YOUR OWN LEARNING?

I like to be friends with my classmates. I enjoy meeting as many people as possible. I like to be able to call them to study with them or ask questions.

PROTOCOL # 02106075

DO YOU PREFER CLASSES IN WHICH THE STUDENTS DO A LOT OF TALKING, OR WHERE STUDENTS DON'T TALK VERY MUCH?

Students talk a lot.

WHY DO YOU PREFER THE DEGREE OF STUDENT INVOLVEMENT/PARTICIPATION THAT YOU CHOSE ABOVE?

It helps to internalize what is being taught. Plus it gives you a variety of ideas.

WHAT DO YOU SEE AS THE ADVANTAGES OF YOUR PREFERENCE ABOVE?

It allows the students to learn to teach themselves.

WHAT DO YOU SEE AS THE DISADVANTAGES OF YOUR PREFERENCE?

Not as many facts are reinforced from the reading during class time.

WHAT TYPE OF INTERACTIONS WOULD YOU LIKE TO SEE AMONG MEMBERS OF A CLASS IN ORDER TO ENHANCE YOUR OWN LEARNING?

Debates of different stances and discussion to explain and analyze. The why's behind something.

PROTOCOL # 05210024

DO YOU PREFER CLASSES IN WHICH THE STUDENTS DO A LOT OF TALKING, OR WHERE STUDENTS DON'T TALK VERY MUCH?

I prefer to have students engage in some discussion.

WHY DO YOU PREFER THE DEGREE OF STUDENT INVOLVEMENT/PARTICIPATION THAT YOU CHOSE ABOVE?

Others in the class help to clarify ideas and issues for us all. They often provide me with additional insights and can sometimes raise questions more clearly than I can.

WHAT DO YOU SEE AS THE ADVANTAGES OF YOUR PREFERENCE ABOVE?

Other students can often relate theory to their own practice - give examples, clarify and raise pertinent issues.

WHAT DO YOU SEE AS THE DISADVANTAGES OF YOUR PREFERENCE?

People can sometimes get "off track." Begin to discuss a peripheral issue that may not be appropriate or helpful.

WHAT TYPE OF INTERACTIONS WOULD YOU LIKE TO SEE AMONG MEMBERS OF A CLASS IN ORDER TO ENHANCE YOUR OWN LEARNING?

I prefer students to offer helpful criticism to each other. To engage in debates that raise a number of sides to an issue.

ISC

PROTOCOL # 01109137

DO YOU PREFER CLASSES IN WHICH THE STUDENTS DO A LOT OF TALKING, OR WHERE STUDENTS DON'T TALK VERY MUCH?

It depends upon nature of the subject - whether it is concept-centered or fact-centered.

WHY DO YOU PREFER THE DEGREE OF STUDENT INVOLVEMENT/PARTICIPATION THAT YOU CHOSE ABOVE?

Concept-development depends upon an active, perhaps even argumentative engagement. The collection of facts depends upon an attitude of receptiveness.

WHAT DO YOU SEE AS THE ADVANTAGES OF YOUR PREFERENCE ABOVE?

Purposeful approach.

WHAT DO YOU SEE AS THE DISADVANTAGES OF YOUR PREFERENCE?

Sometimes the world isn't as neatly put together as you would like. Your sense of purpose isn't other people's sense of purpose. Some people take a determination to find the gestalt in everything - even when they are doing their work in public.

WHAT TYPE OF INTERACTIONS WOULD YOU LIKE TO SEE AMONG MEMBERS OF A CLASS IN ORDER TO ENHANCE YOUR OWN LEARNING?

Give and take.

187

PROTOCOL # 05107218

DO YOU PREFER CLASSES IN WHICH THE STUDENTS DO A LOT OF TALKING, OR WHERE STUDENTS DON'T TALK VERY MUCH?

It doesn't matter.

WHY DO YOU PREFER THE DEGREE OF STUDENT INVOLVEMENT/PARTICIPATION THAT YOU CHOSE ABOVE?

I don't necessarily like talking a lot in classes but it doesn't bother me either. I can learn in either situation.

WHAT DO YOU SEE AS THE ADVANTAGES OF YOUR PREFERENCE ABOVE?

To me none.

WHAT DO YOU SEE AS THE DISADVANTAGES OF YOUR PREFERENCE?

None for me. Some people get nervous when they are expected to talk in a class. This pressure can cause them to withdraw and learn less.

WHAT TYPE OF INTERACTIONS WOULD YOU LIKE TO SEE AMONG MEMBERS OF A CLASS IN ORDER TO ENHANCE YOUR OWN LEARNING?

Discussions in class do not enhance my learning. Group activities are sometimes beneficial but not usually.

PROTOCOL # 01108106

DO YOU PREFER CLASSES IN WHICH THE STUDENTS DO A LOT OF TALKING, OR WHERE STUDENTS DON'T TALK VERY MUCH?

Where students don't talk much.

WHY DO YOU PREFER THE DEGREE OF STUDENT INVOLVEMENT/PARTICIPATION THAT YOU CHOSE ABOVE?

I rarely learn as much from other students as I do from the teacher.

WHAT DO YOU SEE AS THE ADVANTAGES OF YOUR PREFERENCE ABOVE?

This maximizes the time limitation.

WHAT DO YOU SEE AS THE DISADVANTAGES OF YOUR PREFERENCE?

Obviously, questions must be asked after the session has concluded, and such questions may be shared by many students.

WHAT TYPE OF INTERACTIONS WOULD YOU LIKE TO SEE AMONG MEMBERS OF A CLASS IN ORDER TO ENHANCE YOUR OWN LEARNING?

If a class were to meet for 5 days. One day would be reserved for general class discussion - student questions, arguments - led by the teacher. The subjects of such a session should be limited to the subjects discussed by the teacher on lecture days. Discussions between students outside of class ought to be encouraged.

PROTOCOL # 02207173

DO YOU PREFER CLASSES IN WHICH THE STUDENTS DO A LOT OF TALKING, OR WHERE STUDENTS DON'T TALK VERY MUCH?

I prefer classes in which the students do a moderate amount of talking when situation demand.

WHY DO YOU PREFER THE DEGREE OF STUDENT INVOLVEMENT/PARTICIPATION THAT YOU CHOSE ABOVE?

Too little student participation in a discussion demonstrates one way communication which lacks the feedback that the instructor needs. Too much talking from the students can be a source of distraction to the main direction of the course provided by the instructor.

WHAT DO YOU SEE AS THE ADVANTAGES OF YOUR PREFERENCE ABOVE?

The students can feel their involvement in the class and the instructor can get the feedback he needed to be a good teacher.

WHAT DO YOU SEE AS THE DISADVANTAGES OF YOUR PREFERENCE?

It is hard for the instructor to create a good balance of moderate amount of talking by the students without too much going one way or the other extreme.

WHAT TYPE OF INTERACTIONS WOULD YOU LIKE TO SEE AMONG MEMBERS OF A CLASS IN ORDER TO ENHANCE YOUR OWN LEARNING?

I like to see people asking questions when they don't understand. Classmates working together helping others, exchange one's strong points and receive comfort and guidance with one's weak points. Cut the level of unhealthy competition to a minimum. The well above student being more generous and the well below student not depending too much on the other for help.

CHAPTER THIRTEEN

DOMAIN FIVE RATING MANUAL: ROLE OF EVALUATION IN THE LEARNING PROCESS

DOMAIN FIVE OVERVIEW

Position One

Based on knowledge of right answers; teacher knows whether student knows.

Position Two

Based on knowledge of right answers but this is confounded by other variables. How much one knows depends on what one knows to begin with and whether course is teaching what it's supposed to teach. Finding out what students know can be done easily if teachers just know what students know; can be gauged by whether they do assignments or keep up with others; or can be difficult because some homework and tests do not show what students really know. Teacher evaluates.

Position Three

Based on whether students understand the material. Evaluation should focus on material that will be of practical future use. Evaluation is problematic if it does not consider effort of students with restricted learning capacity. Evaluation is problematic in areas where things are unknown. Teacher evaluates but needs to talk to students to know how they learn and how hard they work.

Position Four

Based on ability to think independently. Student and instructor discuss and give each other feedback. Teacher alone has no grounds upon which to evaluate. This is problematic but there are no criteria to decide if other ways are better.

Position Five

Based on competence in subject matter (ability to evaluate, integrate, and apply knowledge in a context). Mutual evaluation by teacher and student together.

MAJOR DISTINCTIONS

Basis for evaluation: to get information (Position One, Position Two), understand it (Position Three), be able to think about it (Position Four), use and apply it (Position Five).

Who is competent to evaluate: unquestionably the teacher (Position One), the teacher with some qualifications (Position Two), probably the teacher with insight into the individual student (Position Three), no one really, but both teacher and student can comment (Position Four), both teacher if an expert and student (Position Five).

LANGUAGE CAUTIONS

The word effort is often used in both Position Two and Three. In Position Two it means doing the right things to learn whereas in Three it means trying hard to learn.

DOMAIN FIVE POSITION DESCRIPTIONS

Domain five focuses on how learning is evaluated. The view of knowledge and roles of instructor and learner affect the learner's notion of how evaluation should be accomplished.

DUALISM

In Positions One and Two the instructor is seen as the authority who knows what is right and wrong. The instructor is also awarded the right to evaluate the learner's progress because the instructor is the best judge of truth. The learner in these positions believes that good grades should automatically follow demonstration of having acquired the right answers.

Position One

The student accepts without question the grade the instructor assigns. Grading is a simple process of the instructor counting the right answers that the student provides.

Reasoning Structures

5.1.1 Evaluation should be based on whether students know the right answers.

> Example: Evaluation should be based on whether or not you know the material because either you know it or you don't. The instructors should be the people who evaluate your work because they are the ones giving you the work.

5.1.2 Instructors evaluate because they know what to expect and whether students know the answers.

Example: No one but the instructor should evaluate, and he should weigh it against the competition and what his experience tells him he should expect. The instructor is the most logical person to render the decision.

Position Two

In Position Two the student still sees the teacher as an authority capable of evaluating students. The instructor's methods of measuring knowledge are not questioned unless the student perceives the instructor as a dumb authority. The students' role is to prove they are acquiring knowledge through the various ways described below. Knowledge is quantifiable. Students in Position Two may not distinguish between tests and evaluations.

Reasoning Structures

5.2.1 Evaluation should be based on one's progress, improvement, or how much one learned in class and should be done by the instructor.

Example: The basis for evaluation is how hard I work, what I have learned, and how far I have come in knowledge since the first day of that class. The instructor and I should both be involved in the evaluation. A lot of courses I knew nothing about. Some of the instructors assumed that I already had some knowledge. Although I did not meet their expectations, I really learned a lot. Although I put a lot of hard work and time into the course, my grades did not show it because of the instructor's mistake of assuming I already knew the material.

5.2.2 Evaluation should be based on the degree to which one knows the material. The instructor is the one to determine this.

Example: The teacher should be the only one involved in the evaluation. Test scores usually are an accurate indication of how you are doing.

Example: Hard work and effort are not a basis for high grades. Accuracy is as important as hard work and effort. Trying isn't always enough. In order to be successful you have to make the right decision 90% of the time or better.

5.2.3 Evaluation should be based on completion of assignments and work because one assumes that by doing the right thing, one will learn the material. Instructor is the one who determines evaluation.

Example: The basis for grades should be the completion of assignments, papers, and exams by the instructor only! The instructor is the person responsible for the course and the student's grades in that course.

Example: I believe evaluation should be based on how much you put into the class in the way of completing homework assignments, outside reading, and interest in the class. Evaluation should be done by the teachers who instruct you, whom you go to for help, and who review your homework. Too much emphasis is put on the midterm and final. All too often, instructors never look at how hard you tried or

the homework you completed. They just figure that if you get a "C" on the midterm you must not have finished all the assignments.

5.2.4 Evaluation should be based on whether one keeps up with other students, thereby proving one is learning.

Example: Effort, I think, has the most bearing on whether or not one learns as much as he can. If a student is keeping up with the other students, he is taking in the information presented to him. A students needs to know if he is lacking in certain skills or areas so he can try to improve them.

5.2.5 Evaluation should include as many opportunities as possible to prove that one knows the material because particular opportunities may not reflect what one knows.

Example: The teacher should be involved in the evaluation and should check to see if students' grades are the same on the tests as on the homework. If someone does super on homework and quizzes and gets a D on a midterm, they should not get punished for one bad grade. Everything should have equal value. Some students choke on tests.

5.2.6 Evaluation should take into account whether the course is teaching what it is supposed to.

Example: Evaluation should be based on how well the students are doing, because if the teacher is a poor one, the students can do proportionally well. The teachers (TA and professor) should be involved in the evaluation. The TA is the one who works more closely with the student, but the professor should know approximately how much the course should be teaching. The evaluations should be combined.

5.2.7 Student involvement in evaluation can be useful if it gives the teacher a chance to correct the student and to know what material needs more attention.

Example: I think the student and teacher should be involved in evaluation, and the basis we have now should be the same except that students should have more influence. If you have some say in your grade, you can better understand why you are doing wrong and are able to correct the problem.

Example: Evaluation should be based on a series of small quizzes involving the material covered that day. All students should be involved because it lets the instructor know who has grasped the material and helps to focus on material that raises difficulty.

TRANSITION

Grading becomes more confusing as the degree to which authorities know the truth dwindles. Because the focus of learning has shifted to processes, so should evaluation of students' learning. Initially, the student is uncertain how the instructor can evaluate work

other than by looking at quantity, but sees authority as the best possible way to judge progress. Eventually the student sees evaluation as impossible in a genuine sense.

Position Three

In Position Three evaluation is no longer absolute and quantifiable. Therefore the issue of true understanding versus recitation arises. Additional issues include objectivity, individual learning styles, practicality of material, and confusion over alternate methods. It is still the responsibility of the instructor to take these into account when grading. The instructor is responsible for finding a fair and objective way to accomplish this.

Reasoning Structures

5.3.1 Evaluation should focus on whether one really understands the material. Tests may reflect only ability to memorize instead of true understanding.

Example: Evaluation should be based on how well we do on tests as well as our effort and our interest. Often one may not score well on tests yet one may have learned twice as much as one who scored well.

Example: I think that pass/fail should be used along with effort in grading. I think the teacher and the student should both be involved. I think that this would put more emphasis on learning the material and not just on remembering it for a test. If you put the marks for effort then you could show how much the person really worked for the class.

5.3.2 Evaluation should account for individual differences in learning capacity. The student's effort should be rewarded out of appreciation for the student as an individual.

Example: I think effort should be considered in grading. If the teacher knows someone worked hard and gets nowhere they deserve a little credit. At least more than someone who shows no effort whatsoever. It takes in a personal characteristic of the student as well as his overall knowledge of the subject.

5.3.3 Evaluation should focus on practicality of material for future use.

Example: I think it should stress more labs, projects, or other practical things that will be used in the future. There should be less stress on theory or other subjects that will not be used after graduation.

5.3.4 Evaluation is seen as inadequate, but new alternatives are not perceived.

Example: I'm not really sure there is an ideal way to evaluate students. To me just giving tests or just papers or just presentations is not fair. Students may choke on tests or do poorly because of nerves. It seems to me it is actually impossible to accurately judge what a student has learned in a class, and to me this is what should be graded. To me grades are not really fair, but if we must have them, they should

be based on diverse criteria, and perhaps students should have a little input somehow.

5.3.5 Evaluation should be a fair process.

Example: I believe in hard work and effort. Evaluation should be based on actual performance on tests, quality of papers written, and time and effort involved in writing papers. The professor should have total control in this evaluation. I only ask the professor to be fair and not bring personalities and so forth into evaluation. These generally are the instruments used in student evaluation. They produce the results of what may have been learned. The professor will have enough trouble in being objective. The students cannot assess their own learning in an objective manner.

Position Four

Evaluation shifts away from knowing the material because knowledge is now uncertain. With this basis for grades gone and the increasing value of students' opinions, numerous possibilities for evaluation arise. Students focus on their involvement in the evaluation process. At Position Four the instructor is no longer responsible for determining the most objective method of evaluation. Grades are generally seen as less useful than a conversation in which the instructor expresses an opinion about the student's learning while the student comments on the value of the course. Seemingly as long as both have their input, any number of methods can be used for evaluation. Some learners fully acknowledge the inadequacy of evaluation methods but perceive no criteria upon which to base evaluation.

Reasoning Structures

5.4.1 Evaluation is a mutual process between students and teacher in which they agree on an evaluation system.

Example: Ideally a type of written evaluation would be used. At the beginning of a course, the teacher and student or teacher and whole class would form a kind of contract outlining what they wanted to see accomplished. The teacher could explain what is advisable to learn and why, but the decision would be mutual. At the end of the course the teacher could evaluate how much was accomplished relative to the goals. But even if the goals weren't met, the short written evaluation should stress what was accomplished.

5.4.2 Evaluation is an exchange of feedback, with the instructor giving feedback on student learning and the student giving feedback on the value of the course.

Example: I feel the instructor should be involved in the evaluation as well as the student. I like the idea of feedback from the instructor, but I also feel the student should be allowed to express an opinion of the instructor's advice.

5.4.3 Evaluation is based on becoming an independent thinker in such a way as to open up new possibilities.

Example: Ideally, a student's ability to use the fundamental information he or she has obtained to solve problems or develop ideas should be the basis. An oral discussion by a competent person (instructor?) would be advantageous.

5.4.4 Evaluation is problematic; alternative methods of evaluation exist, but there are no criteria for choosing among them.

Example: This I have debated for many years. I'm totally against standardized testing, but the two alternatives are this: a strict personal evaluation of the individual by the instructor, or a testing of students as a whole basically on a curve system. I can't personally make a decision.

RELATIVISM

The relativistic person acknowledges uncertainty, but views knowledge as existing in a context. Anyone who has competently engaged in the search for truth in a given context can serve as an authority and thus judge others' learning. This could include instructors, peers, or self. Grades might be viewed as unnecessary because the search for evidence and ability to support one's opinions is sufficient for learning.

Position Five

Evaluation is based on the student's competence as related to the particular topic at hand. Competence includes understanding, ability to apply knowledge in a context, and ability to support one's thoughts. Position Five persons note that a competent individual should be involved in the evaluation.

Reasoning Structures

5.5.1 Evaluation should be conducted in such a way as to accurately measure competence in a subject matter.

Example: I would like to see the grading system thrown out. I would prefer a pass/fail system with the professor and student being involved. Exams do not really reflect a person's understanding of a subject, thus the grade is not a true basis of evaluating competence in a subject matter. I would like to see perhaps papers or oral examinations given.

5.5.2 Evaluation is a form of mutual exchange between instructor and student to maximize growth.

Example: Evaluation should be a cooperative exchange between teacher and students. Feedback is important, but students often know where they are if asked. If the goal is growth then student ideas must be accepted.

5.5.3 Written exams and grades can be an acceptable method of evaluating competence if they are the best alternatives in the context.

Example: In practice there is no practical alternative to grades, but they should be supplemented by exams and thesis or practicum to better demonstrate the students' true mastery of a subject of skill.

Example: Even though written exams aren't the best means of student evaluation, they sometimes are the only alternative. Ideally, an oral exam or two could show what, if anything, the student has been able to derive from the course. At a college this large I think that written exams are the only possible alternative. A single instructor can't possibly give an oral exam individually to each of the students in the class.

5.5.4 Evaluation is a combination of student and instructor working toward a goal together and measuring their progress.

Example: The basis would be a competence model. Before the course begins an outline should be available of what the student should be able to do as a result of the course. This provides a goal that instructors and students can work on together and also a standard against which to measure performance.

PROTOCOL # 02105067

SOME PEOPLE THINK THAT HARD WORK AND EFFORT WILL RESULT IN HIGH GRADES IN SCHOOL. OTHERS THINK THAT HARD WORK AND EFFORT ARE NOT A BASIS FOR HIGH GRADES. WHICH OF THESE STATEMENTS IS MOST LIKE YOUR OWN OPINION?

I believe that hard work and effort definitely will help in obtaining high grades. But, there are other factors involved such as natural intelligence and study habits.

IDEALLY, WHAT DO YOU THINK SHOULD BE USED AS A BASIS FOR EVALUATING YOUR WORK IN COLLEGE COURSES, AND WHO SHOULD BE INVOLVED IN THE EVALUATION?

The best way to see if a student has learned the material for a class is to give him an exam with questions relating to the course. However, th instructor may get a better understanding of the student's knowledge by giving him an oral, short answer type quiz.

PLEASE EXPLAIN WHY YOU THINK THE RESPONSE YOU SUGGESTED ABOVE IS THE BEST WAY FOR EVALUATING STUDENTS' WORK IN COLLEGE COURSES.

The grade a student receives should reflect his knowledge of the course work. A test with questions relating to the course work is the best way to determine the student's knowledge. In an oral exam type of questioning, the instructor could discuss the student's reasoning and perhaps determine where student problems are.

PROTOCOL # 03107059

SOME PEOPLE THINK THAT HARD WORK AND EFFORT WILL RESULT IN HIGH GRADES IN SCHOOL. OTHERS THINK THAT HARD WORK AND EFFORT ARE NOT A BASIS FOR HIGH GRADES. WHICH OF THESE STATEMENTS IS MOST LIKE YOUR OWN OPINION?

It depends on the student and the teacher. If the student has a good background, college (at least undergrad) isn't too difficult, it seems to me. I have on occasion received A's and B's on tests I never spent 20 minutes studying for. However, I attended classes and listened.

IDEALLY, WHAT DO YOU THINK SHOULD BE USED AS A BASIS FOR EVALUATING YOUR WORK IN COLLEGE COURSES, AND WHO SHOULD BE INVOLVED IN THE EVALUATION?

Ideally, we as students would be learning for learning's sake not for grades. I'd like to evaluate myself at the end of the course as well as establish my own goals at the beginning. I think the ultimate goal of school should be learning, growth, and liberation. If these occurred to a lesser degree I would say I passed.

More practically, a short written description by the teacher or by myself of what I learned and what projects I did and what tests I took would be a wonderful replacement for one of 5 letters of the alphabet.

PLEASE EXPLAIN WHY YOU THINK THE RESPONSE YOU SUGGESTED ABOVE IS THE BEST WAY FOR EVALUATING STUDENTS' WORK IN COLLEGE COURSES.

Well, a written description of accomplishments certainly says a lot more than A, B, C, D, or F. I guess it's more difficult to run through a computer but it is much more complete, accurate and personal. It recognizes the individuality of each student. It states what learning took place rather than trying to pigeon-hole the student into a nearly meaningless category. It also gives a voice to the student which is absent in the present system of ABC's. And rather than having only 5 levels or grades, it places quality of learning on a continuum.

PROTOCOL # 01108106

SOME PEOPLE THINK THAT HARD WORK AND EFFORT WILL RESULT IN HIGH GRADES IN SCHOOL. OTHERS THINK THAT HARD WORK AND EFFORT ARE NOT A BASIS FOR HIGH GRADES. WHICH OF THESE STATEMENTS IS MOST LIKE YOUR OWN OPINION?

The former statement.

IDEALLY, WHAT DO YOU THINK SHOULD BE USED AS A BASIS FOR EVALUATING YOUR WORK IN COLLEGE COURSES, AND WHO SHOULD BE INVOLVED IN THE EVALUATION?

Effort and hard work should be considered as a basis for evaluation. But, ultimately, results (the ability of a pianist to play well; the competence of a medical student to diagnose; the quality of an architect student's plan) must dictate the grade, no matter how much effort has been involved. Those professionals--who work effectively already within the chosen discipline--should evaluate the work.

PLEA EXPLAIN WHY YOU THINK THE RESPONSE YOU SUGGESTED ABOVE IS THE BEST WAY FOR EVALUATING STUDENTS' WORK IN COLLEGE COURSES.

Students' work in college courses must be done in preparation for work in future professional life, where one's ultimate worth is based on the ability to produce first-class results. Those who possess extraordinary talent and those who possess only moderate talent may denote different intensities of effort - but they must compete and they must yield competent results. And, one is judged by competent professionals whose reputations have already been established.

PROTOCOL # 05104066

SOME PEOPLE THINK THAT HARD WORK AND EFFORT WILL RESULT IN HIGH GRADES IN SCHOOL. OTHERS THINK THAT HARD WORK AND EFFORT ARE NOT A BASIS FOR HIGH GRADES. WHICH OF THESE STATEMENTS IS MOST LIKE YOUR OWN OPINION?

Hard work and effort will result in high grades.

IDEALLY, WHAT DO YOU THINK SHOULD BE USED AS A BASIS FOR EVALUATING YOUR WORK IN COLLEGE COURSES, AND WHO SHOULD BE INVOLVED IN THE EVALUATION?

A good basis would be to, instead of set exams, have discussions of the material of the course with the instructor.

PLEASE EXPLAIN WHY YOU THINK THE RESPONSE YOU SUGGESTED ABOVE IS THE BEST WAY FOR EVALUATING STUDENTS' WORK IN COLLEGE COURSES.

Because you can study and study but freeze-up when it comes time to write. With a discussion the instructor can help to draw out things that you know but just have tucked away somewhere in your head.

PROTOCOL # 01108143

SOME PEOPLE THINK THAT HARD WORK AND EFFORT WILL RESULT IN HIGH GRADES IN SCHOOL. OTHERS THINK THAT HARD WORK AND EFFORT ARE NOT A BASIS FOR HIGH GRADES. WHICH OF THESE STATEMENTS IS MOST LIKE YOUR OWN OPINION?

Much hard work is involved among most students, but only some of it is in the classroom. Hard work usually does result in high grades.

IDEALLY, WHAT DO YOU THINK SHOULD BE USED AS A BASIS FOR EVALUATING YOUR WORK IN COLLEGE COURSES, AND WHO SHOULD BE INVOLVED IN THE EVALUATION?

A minimum amount of time must be spent by students. This can provide some basis for judgment. Evidence of the pursuit of ideas or the accomplishment of student goals should be evaluated. A representative team should be involved to insure minimum standards are met. Appraisal of students' accomplishments compared to their own goals should be given priority where possible.

PLEASE EXPLAIN WHY YOU THINK THE RESPONSE YOU SUGGESTED ABOVE IS THE BEST WAY FOR EVALUATING STUDENTS' WORK IN COLLEGE COURSES.

Time spent is a prerequisite for most students in getting information in mind. Students' goals are the most important thing. Representative teams can insure institutional standards.

PROTOCOL # 02207053

SOME PEOPLE THINK THAT HARD WORK AND EFFORT WILL RESULT IN HIGH GRADES IN SCHOOL. OTHERS THINK THAT HARD WORK AND EFFORT ARE NOT A BASIS FOR HIGH GRADES. WHICH OF THESE STATEMENTS IS MOST LIKE YOUR OWN OPINION?

My opinion is that hard work and effort will pay off in the end.

IDEALLY, WHAT DO YOU THINK SHOULD BE USED AS A BASIS FOR EVALUATING YOUR WORK IN COLLEGE COURSES, AND WHO SHOULD BE INVOLVED IN THE EVALUATION?

I feel the instructor should be 75% of the evaluation and the student 25%. Basis for evaluation should be attendance, participation, tests, quizzes, and other assignments.

PLEASE EXPLAIN WHY YOU THINK THE RESPONSE YOU SUGGESTED ABOVE IS THE BEST WAY FOR EVALUATING STUDENTS' WORK IN COLLEGE COURSES.

Because the instructor has a wide range of test scores but if the student is giving an effort then a grade should reflect that.

PROTOCOL # 05107228

SOME PEOPLE THINK THAT HARD WORK AND EFFORT WILL RESULT IN HIGH GRADES IN SCHOOL. OTHERS THINK THAT HARD WORK AND EFFORT ARE NOT A BASIS FOR HIGH GRADES. WHICH OF THESE STATEMENTS IS MOST LIKE YOUR OWN OPINION?

Performance is our only basis for grades in design.

IDEALLY, WHAT DO YOU THINK SHOULD BE USED AS A BASIS FOR EVALUATING YOUR WORK IN COLLEGE COURSES, AND WHO SHOULD BE INVOLVED IN THE EVALUATION?

Professional performance rated by professionals.

PLEASE EXPLAIN WHY YOU THINK THE RESPONSE YOU SUGGESTED ABOVE IS THE BEST WAY FOR EVALUATING STUDENTS' WORK IN COLLEGE COURSES.

College is a preparation for a future job.

PROTOCOL # 01208081

SOME PEOPLE THINK THAT HARD WORK AND EFFORT WILL RESULT IN HIGH GRADES IN SCHOOL. OTHERS THINK THAT HARD WORK AND EFFORT ARE NOT A BASIS FOR HIGH GRADES. WHICH OF THESE STATEMENTS IS MOST LIKE YOUR OWN OPINION?

I don't believe that work and effort are sufficient for good grades in college.

IDEALLY, WHAT DO YOU THINK SHOULD BE USED AS A BASIS FOR EVALUATING YOUR WORK IN COLLEGE COURSES, AND WHO SHOULD BE INVOLVED IN THE EVALUATION?

I would like to have several faculty members evaluate my performance based upon attendance, participation, written work, quality of comments in class and demonstration of appropriate skills.

PLEASE EXPLAIN WHY YOU THINK THE RESPONSE YOU SUGGESTED ABOVE IS THE BEST WAY FOR EVALUATING STUDENTS' WORK IN COLLEGE COURSES.

I know of one person who worked harder than any person I've ever seen in college who had a tendency to become test-anxious which greatly affected his performance. In this case, tests alone were not a good indicator of what he had learned.

PROTOCOL # 05208044

SOME PEOPLE THINK THAT HARD WORK AND EFFORT WILL RESULT IN HIGH GRADES IN SCHOOL. OTHERS THINK THAT HARD WORK AND EFFORT ARE NOT A BASIS FOR HIGH GRADES. WHICH OF THESE STATEMENTS IS MOST LIKE YOUR OWN OPINION?

Generally, more the former.

IDEALLY, WHAT DO YOU THINK SHOULD BE USED AS A BASIS FOR EVALUATING YOUR WORK IN COLLEGE COURSES, AND WHO SHOULD BE INVOLVED IN THE EVALUATION?

Our evaluations would ideally be done by the professor and student together and would involve reflecting on what has happened over the course, where the student started and ended, what has been learned, why and why not were requirements met and to what degree.

PLEASE EXPLAIN WHY YOU THINK THE RESPONSE YOU SUGGESTED ABOVE IS THE BEST WAY FOR EVALUATING STUDENTS' WORK IN COLLEGE COURSES.

More need to be taken into consideration than strictly grades in any course evaluation. A grade may not always be reflective of time, effort, and, more importantly, understanding. A usable grasp of knowledge and and reality that receives a "B" on a test is much more valuable than a memorized "A." The grade should attempt to reflect the development of the student within the framework of the class structure. Without a total picture, it could be that "bad grades" are being perpetuated by a bad environment or bad testing.

PROTOCOL # 02205105

SOME PEOPLE THINK THAT HARD WORK AND EFFORT WILL RESULT IN HIGH GRADES IN SCHOOL. OTHERS THINK THAT HARD WORK AND EFFORT ARE NOT A BASIS FOR HIGH GRADES. WHICH OF THESE STATEMENTS IS MOST LIKE YOUR OWN OPINION?

It depends. For most people hard work is the only way to get high grades, some work hard and still don't succeed.

IDEALLY, WHAT DO YOU THINK SHOULD BE USED AS A BASIS FOR EVALUATING YOUR WORK IN COLLEGE COURSES, AND WHO SHOULD BE INVOLVED IN THE EVALUATION?

The amount of effort put into the class. The persons involved should be the instructor and the student.

PLEASE EXPLAIN WHY YOU THINK THE RESPONSE YOU SUGGESTED ABOVE IS THE BEST WAY FOR EVALUATING STUDENTS' WORK IN COLLEGE COURSES.

It seems to be the only fair way. I suppose as the next couple years pass, I'll have more ideas.

PROTOCOL # 001109137

SOME PEOPLE THINK THAT HARD WORK AND EFFORT WILL RESULT IN HIGH GRADES IN SCHOOL. OTHERS THINK THAT HARD WORK AND EFFORT ARE NOT A BASIS FOR HIGH GRADES. WHICH OF THESE STATEMENTS IS MOST LIKE YOUR OWN OPINION?

If a student has normal intelligence, is working hard, and is still coming up with low grades--sub 3.0--he/she ought to ask why he/she is in school or in the major he/she has chosen.

IDEALLY, WHAT DO YOU THINK SHOULD BE USED AS A BASIS FOR EVALUATING YOUR WORK IN COLLEGE COURSES, AND WHO SHOULD BE INVOLVED IN THE EVALUATION?

Tools of evaluation should match the nature of the course. A seminar grade should be based on discussion performance as well as writing. A survey grade should be based on objective exams. In my field--English--written performance is a constant ground for evaluation and should be.

PLEASE EXPLAIN WHY YOU THINK THE RESPONSE YOU SUGGESTED ABOVE IS THE BEST WAY FOR EVALUATING STUDENTS' WORK IN COLLEGE COURSES.

Students need to be convinced that the system used to evaluate them rewards them for their strengths and reveals their deficiencies.

PROTOCOL # 03207058

SOME PEOPLE THINK THAT HARD WORK AND EFFORT WILL RESULT IN HIGH GRADES IN SCHOOL. OTHERS THINK THAT HARD WORK AND EFFORT ARE NOT A BASIS FOR HIGH GRADES. WHICH OF THESE STATEMENTS IS MOST LIKE YOUR OWN OPINION?

Hard work and effort may result in high grades in school depending on how well your short-term memory is. I have several friends who are very intelligent, can do a great job in their lab work and papers, but who are not considered successful by university standards. They can retain information, and procedures on long-term memory, etc., but they don't do well on tests because they can't force themselves to cram in a bunch of facts and spit them out the next day for a test. They would do much better on a system that tests true knowledge learned, not just memorized for a day and then forgotten.

IDEALLY, WHAT DO YOU THINK SHOULD BE USED AS A BASIS FOR EVALUATING YOUR WORK IN COLLEGE COURSES, AND WHO SHOULD BE INVOLVED IN THE EVALUATION?

As the above statement suggests, I believe we need a system that could test a student's knowledge and abilities that are actually retained and not just conveniently memorized for a test, then forgotten, or only vaguely remembered. Evaluations should be done by instructors, TA's, lab teachers, anyone involved directly with the students. Students should also be involved in their own evaluations to clarify points and to site their own positive work and area needing worked on.

PLEASE EXPLAIN WHY YOU THINK THE RESPONSE YOU SUGGESTED ABOVE IS THE BEST WAY FOR EVALUATING STUDENTS' WORK IN COLLEGE COURSES.

An evaluation cannot be fair to the student unless it involves their own input. How can they change or improve unless they evaluate themselves, and have others who know them and who have worked with them evaluate them too? If the student gives a fair evaluation of himself--takes credit for his successes and works out his weak areas--he is doing himself a favor and is getting the most out of his education. If the teacher who works with the student is evaluating him too, then a more realistic picture can be obtained. Someone who only grades papers or who doesn't have direct one-on-one communication with the student is not qualified to evaluate, even if they are the main instructor.

PROTOCOL # 05107218

SOME PEOPLE THINK THAT HARD WORK AND EFFORT WILL RESULT IN HIGH GRADES IN SCHOOL. OTHERS THINK THAT HARD WORK AND EFFORT ARE NOT A BASIS FOR HIGH GRADES. WHICH OF THESE STATEMENTS IS MOST LIKE YOUR OWN OPINION?

I feel hard work and effort will result in high grades. However, I feel people can get around this. By being able to discover and take teachers with easier reputations or by cheating. Lots of big classes.

IDEALLY, WHAT DO YOU THINK SHOULD BE USED AS A BASIS FOR EVALUATING YOUR WORK IN COLLEGE COURSES, AND WHO SHOULD BE INVOLVED IN THE EVALUATION?

College is a situation where people learn ideas and concepts that can help them perform in certain situations. So the only way to evaluate students is to test the depth of their knowledge. I feel that any basic test is a good idea. The only thing I'm against is the picking out an obscure bit of information out of a book to see if you read the book. Especially if it is not important or major.

PLEASE EXPLAIN WHY YOU THINK THE RESPONSE YOU SUGGESTED ABOVE IS THE BEST WAY FOR EVALUATING STUDENTS' WORK IN COLLEGE COURSES.

See above. College evaluation does not claim to be an indicator of how well a person will do in practice.

PROTOCOL # 02206170

SOME PEOPLE THINK THAT HARD WORK AND EFFORT WILL RESULT IN HIGH GRADES IN SCHOOL. OTHERS THINK THAT HARD WORK AND EFFORT ARE NOT A BASIS FOR HIGH GRADES. WHICH OF THESE STATEMENTS IS MOST LIKE YOUR OWN OPINION?

Neither, each individual is different. I may have to work harder at some classes where others are easy.

IDEALLY, WHAT DO YOU THINK SHOULD BE USED AS A BASIS FOR EVALUATING YOUR WORK IN COLLEGE COURSES, AND WHO SHOULD BE INVOLVED IN THE EVALUATION?

There should be a standard for the amount of material learned and this may have to incorporate the job or business world and the public on what standards should be met, such as for lawyers and doctors. These may not need certification but practically so people know what is expected of them as well as the public getting a person of quality education.

PLEASE EXPLAIN WHY YOU THINK THE RESPONSE YOU SUGGESTED ABOVE IS THE BEST WAY FOR EVALUATING STUDENTS' WORK IN COLLEGE COURSES.

If there is a standard, students know what is expected and they can keep with the program at their own pace. The public and business world can be guaranteed that they are getting quality people who have been trained in the fundamentals needed to begin their work in the world.

PROTOCOL # 02107137

SOME PEOPLE THINK THAT HARD WORK AND EFFORT WILL RESULT IN HIGH GRADES IN SCHOOL. OTHERS THINK THAT HARD WORK AND EFFORT ARE NOT A BASIS FOR HIGH GRADES. WHICH OF THESE STATEMENTS IS MOST LIKE YOUR OWN OPINION?

Hard work and effort will result in high grades - for college material students, some must work harder

IDEALLY, WHAT DO YOU THINK SHOULD BE USED AS A BASIS FOR EVALUATING YOUR WORK IN COLLEGE COURSES, AND WHO SHOULD BE INVOLVED IN THE EVALUATION?

Present method is acceptable since each is evaluated equally.

PLEASE EXPLAIN WHY YOU THINK THE RESPONSE YOU SUGGESTED ABOVE IS THE BEST WAY FOR EVALUATING STUDENTS' WORK IN COLLEGE COURSES.

I have no grievances against the present system. It best reflects the real world in that you must play by the rules given to do well.

CHAPTER FOURTEEN

DOMAIN SIX RATING MANUAL: NATURE OF KNOWLEDGE, TRUTH AND REALITY

DOMAIN SIX OVERVIEW

Position One

All truth is known. What seem to be differences are the result of lack of understanding. Decide what is right by what authority tells you.

Position Two

All truth is known. Conflicting explanations occur because one teacher is wrong (dumb authority), degree of details differ, or opinions about the facts differ. The facts are still the facts, it's just harder to identify the right answer under these adverse conditions.

Position Three

Two categories of knowledge: what is known, and what is unknown at present. For the first category, differences are explained as in Position Two above. Resolution equals finding out. For the unknown category differences are accounted for by information being unknown. You just decide what to believe on the basis of logic or the most recent information.

Position Four

A return to one category of knowledge: all is unknown. Many differences exist because of differing opinions, interpretations, biases, and so forth. One can choose by thinking things out independently, picking and choosing parts of an explanation, accepting many explanations to stay open minded, or deciding they are all wrong. Although most people in

Position Four use their own criteria, oppositional thinkers use the instructor's criteria for choice.

Position Five

Knowledge is uncertain but exists in a context. It can be known by those with experience and expertise in exploring the particular context. One evaluates the evidence to judge what to believe.

MAJOR DISTINCTIONS

Nature of knowledge: all known by authorities (Position One), all known by most authorities but not always presented clearly (Position Two), some known, some unknown (Position Three), all unknown (Position Four), uncertain but definable in a context (Position Five).

How one evaluates knowledge: believes authorities (Position One), believes good authorities (Position Two), believes what one thinks is logical and recent (Position Three), believes whatever one wants (Position Four), evaluates evidence in a context (Position Five).

LANGUAGE CAUTIONS

"One can never be sure" can refer to not knowing what is right even though it is known to authorities (Position Two) or to no one knowing what is right because truth is unknown (Position Four).

DOMAIN SIX POSITION DESCRIPTIONS

Domain six is intended to explore the view of knowledge, truth, or reality. The degree to which one believes truth exists and how one arrives at the truth are the focus of the changes described below.

DUALISM

The dualistic person believes that truth exists. Only one perspective on any subject is the true one. Therefore conflicting notions are dealt with as though one of them were not there or were not true. The process of dealing with conflicting versions of the truth is a simple one of deciding which version is right.

Position One

Categorizing conflicting notions into right and wrong is a simple process. Differing explanations just seem different. The explanation assigned to the right category is likely to be the one most easily understood.

Reasoning Structures

6.1.1 Knowledge is certain but one might view explanations of knowledge differently if one does not understand the explanations.

Example: No, I don't think one can be more correct than the other because they should know what they are talking about. I would believe the one that I understand the best. I'm not really sure because we usually believe what the teacher tells us.

Position Two

Categorizing conflicting notions into right and wrong remains a simple process providing one can identify which answer is right. The only difference is that the explanation for there being two perspectives is that one of the authorities is dumb and doesn't know the right answer or doesn't explain clearly enough to make the right answer apparent. Both facts and opinions may be mentioned; however, opinions about facts are not considered legitimate truth in the same way as are facts.

Reasoning Structures

6.2.1 Knowledge is certain and discrepancies result when one explanation is wrong.

Example: It depends on the degree to which the instructor has researched the topic. Taking in all the facts and finding out which theory could possibly be disproven. Yes, they would have to check themselves and either form their own opinion, or disprove another theory.

6.2.2 Knowledge is certain and different explanations arise from differing degrees of detail.

Example: It's possible. One might go into more detail than another. Go directly to the "horse's mouth." Ask what the explanations really mean and try to determine from there. I'm just not sure whether one can ever be sure. One can't be sure if one didn't go to the source and find out what the problem was.

Example: I don't think that one instructor can be too far off of another instructor's ideas, concepts, and facts. They all know the material to their best but just explain it in a different way. One would have to ask the teacher if confused, or better yet ask another teacher in the same field what he or she thought was right. More than likely he or she will agree with both of them. I really don't think one can be sure unless one explanation is so far-fetched that even I know it is incorrect.

6.2.3 Knowledge is certain and different explanations occur when instructors express different opinions about the facts.

Example: Yes, one can be more correct. If it is the teacher's own explanation I would not believe it. If the teacher is explaining from the actual facts, then I would believe it. You can't be sure what to believe because each person has their own version of what to teach. You have to believe what that person says at the time and then make your own decision on what to believe.

Example: One instructor cannot be more correct than another. They are stating facts from their own viewpoint. I would believe the one that best suited me and my values and thoughts. One can never be sure because even though the facts may be there, the explanation of them is not always believable.

TRANSITION

In Positions Three and Four the notion that truth definitely exists in all areas begins to change. The person initially discovers that although some truth is known, other areas seem unknown at present. As more and more areas fall into the latter category, thinking shifts to the notion that everything must be uncertain. The Position Four person concludes that because truth is not really known, everyone just decides for oneself.

Position Three

In Position Three it is possible for the truth to be disputed because some things are yet to be known for sure. It becomes difficult, however, to define how the disagreement can be resolved. Should one expert seem to have a better process for finding the truth, he or she may be presumed to be right, at least until the truth is really discovered. The Position Three person believes that the truth will be known for sure in the future. However, in the meantime, opinions could become legitimate truth if supported by enough factual evidence.

Reasoning Structures

6.3.1 Knowledge falls into two categories; that which is known and that which is not. Different explanations for the first category result from difference in details, viewpoints and authorities. In the second category differences are explained by knowledge being unknown.

Example: Yes they could. I would take the one that seemed to be more logical and seemed appropriate to the situation. Also I would check if there were supporting facts for the explanation. One can be sure by the facts supporting the explanation. Who's going to believe something that can't be supported? One can't be sure if neither explanation has support. The explanations are probably far-out opinions, or a concept not based on any real facts.

6.3.2 Assuming the same two categories of knowledge, if one is discussing abstract areas, one cannot be sure what to believe but can choose on the basis of logic, acceptance, one's beliefs, and the most recent information.

Example: Yes. Historical events are facts. You cannot change their interpretation. Scientific phenomena may be explained differently. I would accept the one that sounds more logical to me and is more widely accepted. One can't be sure unless they personally investigate this; one will not know whether it was explained by the person's opinions or strictly by factual occurrences.

6.3.3 Assuming the same two categories of knowledge, different explanations in the first category are a result of instructors' own viewpoints about the facts. However, in

the unknown category opinions may become legitimate truth if evidence is found to support them in the future.

Example: If no previous knowledge on the subject is in the memory vault of the brain, there are many books, magazines, and so forth to consult in order to come to an unbiased opinion. Research explanations and decide if they are opinionated in any way or factual. Opinionated or unproven explanations are difficult to believe, unless one finds facts to support them.

Position Four

In Position Four it is even more possible for the truth to be disputed. Because no one knows the truth there can be an infinite number of explanations for any notion. Discrepancies cannot be resolved because no criteria exist for deciding. Everyone has a right to his or her own opinion because opinions are no longer restricted by absolute truth (facts). No one has the right to call another person's opinion wrong.

Reasoning Structures

6.4.1 Differences result because everyone has one's own set of beliefs. One just chooses what one believes is important or what is real.

Example: Not necessarily, one instructor may view the event differently from others. I would adapt the explanation in which I personally believed. One can't be sure because everyone is an individual and thinks differently about certain situations. Everyone has one's own set of concepts and beliefs.

6.4.2 Differences result from to interpretation or bias. One doesn't know what to believe so one thinks it out on one's own.

Example: Sometimes. History is especially subjective, and even in science, research results will, at times, contradict each other. However, different explanations often seem to be affected by ideology, religion, and prejudices in general. One example that comes to mind is Freudian psychology. One instructor said it was worthless and another implied it was ultimate truth. I took several things into account when deciding which to believe. I listened to the instructor, considered his credibility, depended on outside information from reading and talking to people, and looked at the ideas I agreed and disagreed with. The only way to be sure about anything is to get as much information from as many varied sources as possible and do some thinking on one's own. With issues that involve morality and values, many explanations are equally valid simply because they are based on values and not facts. Also because scientific evidence can contradict itself at times, one can become confused and unsure.

6.4.3 Differences of opinion exist, and one can choose parts of each or decide there are not enough criteria to make a decision.

Example: "Can he be?" - yes. "Is he undoubtedly?" - no. There is frequently support for several different theories. Educational backgrounds and biases may cause one scientist to select one theory above another. I doubt I'd find a need to believe in either one of them above the other. I would find a need to be able to speak about both ideas intelligently, however. If the "facts" leave only one answer to you, then believe it. But hang on to the other ideas and be open to reevaluating your mind-set.

6.4.4 Different opinions can be correct or incorrect. One accepts them all in an attempt to stay open-minded.

Example: No - just a matter of the person relating the information - his or her interpretation. Certainly no one answer is right, the world is not that simple. I would go on what I feel is logical. But I certainly would not discount the other; I would store it in my memory and hopefully recall it at a time when I needed to. One can never be sure. A lot of people have given credibility, for example, to Freud's work - now it seems that psychologists are drifting from him. I think there are periods we go through when we give credibility to one idea and then we shift back, always changing. Two explanations can be logical and worthwhile, so I take the information given for that period of time for what it is.

6.4.5 One establishes one's own criteria for choosing but in a course one uses the instructor's criteria.

Example: Yes. One may be teaching on a more detailed level, or the event/phenomenon may not have been precisely enough investigated at this time to preclude alternate equally possible explanations. The explanation proposed and maybe the one you believe may depend upon your reason for investigating the topic in the first place. You must base such a decision on your own context, or in courses, upon the expressed goals and emphasis of the course/instructor.

RELATIVISM

In relativism the truth can be known again but on a basis different from that of the earlier positions. Truth is now based on experiences and expertise in exploring a particular area of knowledge. Although truth may not be known in an absolute sense, it can be constructed on the basis of the evidence at hand.

Position Five

Persons in Position Five will analyze different views in terms of the evidence and exhibit a more complex understanding of the issues involved. Judgments of better and worse arguments exist, and decisions are based on evidence rather than on authority, norms, or personal opinion.

Reasoning Structures

6.5.1 Knowledge is uncertain but one can determine the most appropriate viewpoint based on how well it fits the context in question.

Example: A theory must fit the facts. A theory is not "correct," it is merely the best explanation of the observed facts that are incomplete. One theory may fit the facts better but the facts are incomplete. We can't have total knowledge, so our predictions are based on incomplete data. New data may be predicted by theory but are seldom perfectly accurate. Our most current physical theories tell us you can't determine anything absolutely, only high probabilities.

6.5.2 Knowledge is uncertain but judgments can be made after evaluating the evidence. (Evaluation of evidence may be implied or explicit.)

Example: Being a scientist I would say yes. Usually, but not always; one explanation is more plausible than others. I base my decision on which explanation has the most supporting evidence and which person has drawn the most logical conclusion from the evidence. By relying on information you have obtained and your own experience, you may be able to judge the merits of an explanation. If you have little knowledge or evidence in the area, judgments become difficult.

Example: No, as different theoretical perspectives may be given. Hopefully both are knowledgeable of the topic. I choose that one that best fits my own philosophy, which has been formulated from further readings in the literature and research journals. One can be sure through further investigation, reading, and asking questions.

PROTOCOL # 01108106

SOMETIMES DIFFERENT INSTRUCTORS GIVE DIFFERENT EXPLANATIONS FOR HISTORICAL EVENTS OR SCIENTIFIC PHENOMENA. WHEN TWO INSTRUCTORS EXPLAIN THE SAME THING DIFFERENTLY, CAN ONE BE MORE CORRECT THAN THE OTHER?

No

WHEN TWO EXPLANATIONS ARE GIVEN FOR THE SAME SITUATION, HOW WOULD YOU GO ABOUT DECIDING WHICH EXPLANATION TO BELIEVE? PLEASE GIVE DETAILS AND EXAMPLES.

1. I would seek to understand how their interpretations relate to information and facts established to be indisputable.
2. I would consider how their explanations relate to my own experience and understanding.
3. I would consider their sources (bibliographical and otherwise) and the the methodology employed which led to the conclusions.

CAN ONE EVER BE SURE OF WHICH EXPLANATION TO BELIEVE? IF SO, HOW?

In the case of a historical question for which we have no tangible answer, no.

IF ONE CAN'T BE SURE OF WHICH EXPLANATION TO BELIEVE, WHY NOT?

One cannot be certain of the validity of historical sources, or methodology employed. However with sufficient reliable justification and the use of common sense, one explanation can often be more reasonable. None of us is omniscient - we must rely upon the findings, experiences, and reports of others, many of whom lived in the past.

PROTOCOL # 02107167

SOMETIMES DIFFERENT INSTRUCTORS GIVE DIFFERENT EXPLANATIONS FOR HISTORICAL EVENTS OR SCIENTIFIC PHENOMENA. WHEN TWO INSTRUCTORS EXPLAIN THE SAME THING DIFFERENTLY, CAN ONE BE MORE CORRECT THAN THE OTHER?

Certainly! Quite possibly one has been given information that is not correct or is not as complete. Also, the environmental background of each may influence how each perceives or understands the exact same phenomena.

WHEN TWO EXPLANATIONS ARE GIVEN FOR THE SAME SITUATION, HOW WOULD YOU GO ABOUT DECIDING WHICH EXPLANATION TO BELIEVE? PLEASE GIVE DETAILS AND EXAMPLES.

By sorting out the facts from the fiction. By going to someone who is knowledgeable in this area and getting advice. And, finally, by evaluating all of this information to make a decision.

CAN ONE EVER BE SURE OF WHICH EXPLANATION TO BELIEVE? IF SO, HOW?

In some situations if there is not enough confirming information, a given explanation may be hard to believe.

IF ONE CAN'T BE SURE OF WHICH EXPLANATION TO BELIEVE, WHY NOT?

Because past experiences or a lack of information may make certain explanations impossible to believe.

PROTOCOL # 05210024

SOMETIMES DIFFERENT INSTRUCTORS GIVE DIFFERENT EXPLANATIONS FOR HISTORICAL EVENTS OR SCIENTIFIC PHENOMENA. WHEN TWO INSTRUCTORS EXPLAIN THE SAME THING DIFFERENTLY, CAN ONE BE MORE CORRECT THAN THE OTHER?

Yes, depending on the data presented and the line of reasoning used in coming to one particular explanation or conclusion.

WHEN TWO EXPLANATIONS ARE GIVEN FOR THE SAME SITUATION, HOW WOULD YOU GO ABOUT DECIDING WHICH EXPLANATION TO BELIEVE? PLEASE GIVE DETAILS AND EXAMPLES.

I would decide on the basis of the data available and how reasonable an explanation seemed to me with regard to logic and probability. For example, based on archaelogical evidence available, it is reasonable for me to believe that man evolved from the ape. Given the existence of skeletal remains from early man, etc. I believe it is reasonable to believe that man evolved over a period of time.

CAN ONE EVER BE SURE OF WHICH EXPLANATION TO BELIEVE? IF SO, HOW?

In some cases, for example, I think we have sufficient evidence to believe that the earth is round. In other cases, we believe because of a preponderance of evidence, etc. But, believing isn't the same as knowing, in that sense, we don't need to be sure of the explanation (i.e. certain). We need to know what we believe and why we believe it. Why that given explanation makes sense to us.

IF ONE CAN'T BE SURE OF WHICH EXPLANATION TO BELIEVE, WHY NOT?

One can't be objectively certain of beliefs; but one can be subjectively sure--can back up our belief with an explanation of how and why we believe it.

PROTOCOL # 02106000

SOMETIMES DIFFERENT INSTRUCTORS GIVE DIFFERENT EXPLANATIONS FOR HISTORICAL EVENTS OR SCIENTIFIC PHENOMENA. WHEN TWO INSTRUCTORS EXPLAIN THE SAME THING DIFFERENTLY, CAN ONE BE MORE CORRECT THAN THE OTHER?

Yes. One may be right while the other may be wrong. It's your job to find out the truth yourself in a case such as this one.

WHEN TWO EXPLANATIONS ARE GIVEN FOR THE SAME SITUATION, HOW WOULD YOU GO ABOUT DECIDING WHICH EXPLANATION TO BELIEVE? PLEASE GIVE DETAILS AND EXAMPLES.

Go to the library and look it up yourself! Don't just let it go by if you really have to know for sure. Then, if you find one instructor wrong, tactfully show him the correct information so he will know.

CAN ONE EVER BE SURE OF WHICH EXPLANATION TO BELIEVE? IF SO, HOW?

Yes! Find out yourself who is right. Then believe what you discovered and show the wrong instructor why he/she is wrong.

IF ONE CAN'T BE SURE OF WHICH EXPLANATION TO BELIEVE, WHY NOT?

Because one didn't go find out for oneself which explanation to believe, which is one's fault for being stupid and lazy and just plain not giving a ------.

PROTOCOL # 03207058

SOMETIMES DIFFERENT INSTRUCTORS GIVE DIFFERENT EXPLANATIONS FOR HISTORICAL EVENTS OR SCIENTIFIC PHENOMENA. WHEN TWO INSTRUCTORS EXPLAIN THE SAME THING DIFFERENTLY, CAN ONE BE MORE CORRECT THAN THE OTHER?

Yes, I believe so.

WHEN TWO EXPLANATIONS ARE GIVEN FOR THE SAME SITUATION, HOW WOULD YOU GO ABOUT DECIDING WHICH EXPLANATION TO BELIEVE? PLEASE GIVE DETAILS AND EXAMPLES.

I would take into account who was telling it, their educational background and expertness in the area. If there was any question left in my mind I would look it up myself in a textbook or a journal. I might also go to the instructor and ask them to go into further detail, etc. If a teacher had said that caffeine causes cancer and another that said it didn't, I would ask their sources and look it up in a reputable cancer publication.

CAN ONE EVER BE SURE OF WHICH EXPLANATION TO BELIEVE? IF SO, HOW?

If there are contradictions even in the literature and research, which is likely on certain subjects, then one may not ever be sure as to the "correct" answer. There might not be one.

IF ONE CAN'T BE SURE OF WHICH EXPLANATION TO BELIEVE, WHY NOT?

As the above states, current knowledge and research on certain subjects are not yet developed enough and answers may only be tentative until more knowledge is uncovered. You just have to take and accept as a given we cannot and do not know everything that we'd like to know at this point in time.

PROTOCOL # 03206096

SOMETIMES DIFFERENT INSTRUCTORS GIVE DIFFERENT EXPLANATIONS FOR HISTORICAL EVENTS OR SCIENTIFIC PHENOMENA. WHEN TWO INSTRUCTORS EXPLAIN THE SAME THING DIFFERENTLY, CAN ONE BE MORE CORRECT THAN THE OTHER?

It is possible. There is always many perspectives in explaining things. It is beneficial for the student to see many sides and to use their own active cognitive abilities.

WHEN TWO EXPLANATIONS ARE GIVEN FOR THE SAME SITUATION, HOW WOULD YOU GO ABOUT DECIDING WHICH EXPLANATION TO BELIEVE? PLEASE GIVE DETAILS AND EXAMPLES.

Read other books related to the situation.

Question the instructor. (scientific; rational?)

Understand your own beliefs and knowledge and apply it.

Ask around to other experts, colleagues.

CAN ONE EVER BE SURE OF WHICH EXPLANATION TO BELIEVE? IF SO, HOW?

Through several opinions.

Own conceptualization using present/past knowledge concerning the situation.

IF ONE CAN'T BE SURE OF WHICH EXPLANATION TO BELIEVE, WHY NOT?

Many things are value-based.

Because man is imperfect and thus, there is room for inaccuracy and deception.

PROTOCOL # 05107001

SOMETIMES DIFFERENT INSTRUCTORS GIVE DIFFERENT EXPLANATIONS FOR HISTORICAL EVENTS OR SCIENTIFIC PHENOMENA. WHEN TWO INSTRUCTORS EXPLAIN THE SAME THING DIFFERENTLY, CAN ONE BE MORE CORRECT THAN THE OTHER?

Of course! One can be right and one can be wrong.

WHEN TWO EXPLANATIONS ARE GIVEN FOR THE SAME SITUATION, HOW WOULD YOU GO ABOUT DECIDING WHICH EXPLANATION TO BELIEVE? PLEASE GIVE DETAILS AND EXAMPLES.

I simply ask myself to judge the merits of the explanations and what good reasons there are to support or refute that explanation. Ex. evolution vs. creationism. Since I have never been given what I consider to be good reasons to believe in creationism - I don't!

CAN ONE EVER BE SURE OF WHICH EXPLANATION TO BELIEVE? IF SO, HOW?

Yes, you can be sure. Believe the one which gives you reason to believe it. There's always room for disagreement. You can be sure in your own mind however as long as your belief is based on sound reasoning.

IF ONE CAN'T BE SURE OF WHICH EXPLANATION TO BELIEVE, WHY NOT?

PROTOCOL # _0[illegible] ___

SOMETIMES DIFFERENT INSTRUCTORS GIVE DIFFERENT EXPLANATIONS FOR HISTORICAL EVENTS OR SCIENTIFIC PHENOMENA. WHEN TWO INSTRUCTORS EXPLAIN THE SAME THING DIFFERENTLY, CAN ONE BE MORE CORRECT THAN THE OTHER?

It's possible.

WHEN TWO EXPLANATIONS ARE GIVEN FOR THE SAME SITUATION, HOW WOULD YOU GO ABOUT DECIDING WHICH EXPLANATION TO BELIEVE? PLEASE GIVE DETAILS AND EXAMPLES.

Depending on my perceptions and knowledge of the situation, I would weigh the explanations and determine their credibility on that basis.

CAN ONE EVER BE SURE OF WHICH EXPLANATION TO BELIEVE? IF SO, HOW?

Very few issues are entirely clearcut.

IF ONE CAN'T BE SURE OF WHICH EXPLANATION TO BELIEVE, WHY NOT?

Interpretations are determined by individuals' perspectives, experiences, learnings, etc. There can be degrees of validity for different explanations.

PROTOCOL # 05208044

SOMETIMES DIFFERENT INSTRUCTORS GIVE DIFFERENT EXPLANATIONS FOR HISTORICAL EVENTS OR SCIENTIFIC PHENOMENA. WHEN TWO INSTRUCTORS EXPLAIN THE SAME THING DIFFERENTLY, CAN ONE BE MORE CORRECT THAN THE OTHER?

Probably not. In so general a comment, however, it is hard to say if factually one may be more correct than another.

WHEN TWO EXPLANATIONS ARE GIVEN FOR THE SAME SITUATION, HOW WOULD YOU GO ABOUT DECIDING WHICH EXPLANATION TO BELIEVE? PLEASE GIVE DETAILS AND EXAMPLES.

I would try to weigh the facts as I know them with my own experiences and background. If possible, I would investigate both explanations to be sure they are valid from their sources. Based on everything I would then have on hand, I would try to make the best decision I could.

CAN ONE EVER BE SURE OF WHICH EXPLANATION TO BELIEVE? IF SO, HOW?

Sometimes if the evidence is inconclusive, no. Often you have to have faith in the source and your experiences with that person other times.

IF ONE CAN'T BE SURE OF WHICH EXPLANATION TO BELIEVE, WHY NOT?

Beyond the problem of lack of validity, sometimes one can't make a decision because of lack of faith in oneself. Any decision made has to be one you can own and live with and that takes relative self-confidence.

PROTOCOL # 05110162

SOMETIMES DIFFERENT INSTRUCTORS GIVE DIFFERENT EXPLANATIONS FOR HISTORICAL EVENTS OR SCIENTIFIC PHENOMENA. WHEN TWO INSTRUCTORS EXPLAIN THE SAME THING DIFFERENTLY, CAN ONE BE MORE CORRECT THAN THE OTHER?

Uncertain if yes or no answer possible.

WHEN TWO EXPLANATIONS ARE GIVEN FOR THE SAME SITUATION, HOW WOULD YOU GO ABOUT DECIDING WHICH EXPLANATION TO BELIEVE? PLEASE GIVE DETAILS AND EXAMPLES.

Each student must interpret the given data and establish his/her own logical conclusion.

CAN ONE EVER BE SURE OF WHICH EXPLANATION TO BELIEVE? IF SO, HOW?

Increasing information continually allows for changing conclusions. One continually updates their standing on certain issues.

IF ONE CAN'T BE SURE OF WHICH EXPLANATION TO BELIEVE, WHY NOT?

Explanation is incomplete!

Not enough information upon which to make a conclusion.

PROTOCOL # 02206012

SOMETIMES DIFFERENT INSTRUCTORS GIVE DIFFERENT EXPLANATIONS FOR HISTORICAL EVENTS OR SCIENTIFIC PHENOMENA. WHEN TWO INSTRUCTORS EXPLAIN THE SAME THING DIFFERENTLY, CAN ONE BE MORE CORRECT THAN THE OTHER?

Yes.

WHEN TWO EXPLANATIONS ARE GIVEN FOR THE SAME SITUATION, HOW WOULD YOU GO ABOUT DECIDING WHICH EXPLANATION TO BELIEVE? PLEASE GIVE DETAILS AND EXAMPLES.

I would probably see if both explanations would be possible to accept. Both explanations may be correct and equally likely (i.e. creation vs. evolution).

CAN ONE EVER BE SURE OF WHICH EXPLANATION TO BELIEVE? IF SO, HOW?

Unless one of the explanations is so far fetched, I would be inclined to not be so cut and dry by saying one is right or wrong; it is always good to be open-minded.

IF ONE CAN'T BE SURE OF WHICH EXPLANATION TO BELIEVE, WHY NOT?

Keep both explanations in the back of your mind and seek further information from reliable sources. Never disregard an explanation unless you're 100% sure its false.

PROTOCOL # 03109001

SOMETIMES DIFFERENT INSTRUCTORS GIVE DIFFERENT EXPLANATIONS FOR HISTORICAL EVENTS OR SCIENTIFIC PHENOMENA. WHEN TWO INSTRUCTORS EXPLAIN THE SAME THING DIFFERENTLY, CAN ONE BE MORE CORRECT THAN THE OTHER?

Of course.

WHEN TWO EXPLANATIONS ARE GIVEN FOR THE SAME SITUATION, HOW WOULD YOU GO ABOUT DECIDING WHICH EXPLANATION TO BELIEVE? PLEASE GIVE DETAILS AND EXAMPLES.

First, I would use my gut feeling about which one was right. Second, I would evaluate the teacher in terms of the knowledge of the subject by examining previous situations and lectures. Then, I would ask for another opinion from another instructor.

CAN ONE EVER BE SURE OF WHICH EXPLANATION TO BELIEVE? IF SO, HOW?

No

IF ONE CAN'T BE SURE OF WHICH EXPLANATION TO BELIEVE, WHY NOT?

People, professors, students, etc., all have differences of opinions on everything, including subject matter. And things are always changing in a manner that new ideas from these new opinions and ideas are constantly becoming a part of different events and phenomena.

PROTOCOL # 02205105

SOMETIMES DIFFERENT INSTRUCTORS GIVE DIFFERENT EXPLANATIONS FOR HISTORICAL EVENTS OR SCIENTIFIC PHENOMENA. WHEN TWO INSTRUCTORS EXPLAIN THE SAME THING DIFFERENTLY, CAN ONE BE MORE CORRECT THAN THE OTHER?

They can both be correct. It would depend on your point of view.

WHEN TWO EXPLANATIONS ARE GIVEN FOR THE SAME SITUATION, HOW WOULD YOU GO ABOUT DECIDING WHICH EXPLANATION TO BELIEVE? PLEASE GIVE DETAILS AND EXAMPLES.

I'm not sure. I guess I would look at the facts, then decide which one would seem more probable.

CAN ONE EVER BE SURE OF WHICH EXPLANATION TO BELIEVE? IF SO, HOW?

It would depend if both explanations came from people who know what they are talking about.

IF ONE CAN'T BE SURE OF WHICH EXPLANATION TO BELIEVE, WHY NOT?

Because both could be right.

PROTOCOL # 05108055

SOMETIMES DIFFERENT INSTRUCTORS GIVE DIFFERENT EXPLANATIONS FOR HISTORICAL EVENTS OR SCIENTIFIC PHENOMENA. WHEN TWO INSTRUCTORS EXPLAIN THE SAME THING DIFFERENTLY, CAN ONE BE MORE CORRECT THAN THE OTHER?

One could be but wouldn't necessarily have to be.

WHEN TWO EXPLANATIONS ARE GIVEN FOR THE SAME SITUATION, HOW WOULD YOU GO ABOUT DECIDING WHICH EXPLANATION TO BELIEVE? PLEASE GIVE DETAILS AND EXAMPLES.

In evaluating the supporting arguments, I'd determine which was more consistent with my own beliefs.

CAN ONE EVER BE SURE OF WHICH EXPLANATION TO BELIEVE? IF SO, HOW?

No. We can't assume that all of the facts are present or if they are available at all.

IF ONE CAN'T BE SURE OF WHICH EXPLANATION TO BELIEVE, WHY NOT?

As above, we need to reevaluate our beliefs with the addition of any new evidence. We must assume that there is always more to know and that what we don't know is as important in forming our beliefs as what we knew.

PROTOCOL # 05207013

SOMETIMES DIFFERENT INSTRUCTORS GIVE DIFFERENT EXPLANATIONS FOR HISTORICAL EVENTS OR SCIENTIFIC PHENOMENA. WHEN TWO INSTRUCTORS EXPLAIN THE SAME THING DIFFERENTLY, CAN ONE BE MORE CORRECT THAN THE OTHER?

No. One teacher may have related the situation in a better context that a certain student may understand better.

WHEN TWO EXPLANATIONS ARE GIVEN FOR THE SAME SITUATION, HOW WOULD YOU GO ABOUT DECIDING WHICH EXPLANATION TO BELIEVE? PLEASE GIVE DETAILS AND EXAMPLES.

I would see which explanation relates closer to the way I feel so it will be easier for me to understand.

CAN ONE EVER BE SURE OF WHICH EXPLANATION TO BELIEVE? IF SO, HOW?

No

IF ONE CAN'T BE SURE OF WHICH EXPLANATION TO BELIEVE, WHY NOT?

Because many different people grew up in different places, socially along with location; therefore, what may be true in one respect may be wrong in a different social circle.

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Date:

Principal investigator(s):

Brief statement of the PURPOSE of the research.

HYPOTHESIS(ES):

METHOD:

Description of the SAMPLE: include number, class rank distribution (freshmen, sophomores, etc.), selection process.

OTHER INSTRUMENTS to be used if for the purpose of comparison to the MER (note the purpose of comparison).

DESIGN of the study.

PROCEDURES: please include details on administration of the MER and timelines for administration.

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Do you wish certified raters to rate for you? yes no

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Rater Certification Program
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PROGRAM DESCRIPTION

Certification as a rater for the Measure of Epistemological Reflection (MER) requires a .80 correlation with expert ratings on a set of 20 protocols not included in this volume. The intraclass correlation is used to compare ratings submitted with expert ratings of the authors. The certification protocols will be provided upon request to persons wishing to apply for certification.

The Measure of Epistemological Reflection Rating Manual and rating instructions included in this volume provide the necessary foundation for rating the MER. The training process involves study of the manual and practice rating using the practice protocols in chapters 9 - 14. It is assumed that raters will practice to achieve accuracy prior to requesting the certification protocols.

COST

The MER Certification Program is available at the cost of materials. The certification package includes 20 complete protocols of 6 pages each and forms for recording ratings. These costs, in addition to postage and computer processing, total $10.00. Applicants are asked to provide payment at the time materials are requested.

APPLICATION PROCESS

1. Contact Marcia Baxter Magolda at the address below to request the certification protocols.

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Address all correspondence regarding certification, including certification package payment, to:

Dr. Marcia B. Baxter Magolda
Department of Educational Leadership
350 McGuffey Hall
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RATING FORM FOR THE MEASURE OF EPISTEMOLOGICAL REFLECTION

DOMAIN:_____ RATER: _____

PROTOCOL #	RATING ASSIGNED	NEW CATEGORY	COMMENTS

Note: The format of the rating form is designed to match the rating of multiple protocols one domain at a time. The domain can be identified at the top of the form. Domain ratings must be transfered to another sheet in order to record the ratings for an individual protocol before calculating the TPR.

DOMAIN ONE: DECISION MAKING

Protocol #	Expert Rating	Rationale
02205105	1.2.1 1.2.2	Right choice made on basis of superficial analysis of what is right/what one likes.
02206012	1.2.2	Right choice based on superficial analysis of what one likes.
02107167	1.3.1	Choice based on what will work out best and what one will be happy with.
02205064	1.4.3	Choice constitutes a delay - choice provides skills for all the alternatives.
05104066	1.2.1 1.2.2	Right choice equals superficial analysis of what one likes and what is right.
05108055	1.3.1 1.3.4	Choice is what will work out best in future.
01109137	1.5.7	Better choice implied after prediction of problems (weighing of alternatives).
03208033	1.3.1 1.3.3	Looks for what will work out best in the future, be most satisfying. Investigated both programs, talked to people, etc. Did not really discuss indepth, as a Five would have done.
02207053	1.3.1	Comfortable with alternatives, focuses on implied process for choosing, vague future considerations.
05107228	1.4.4	Really wants to keep both but this creates a problem, so gives up one with the idea of coming back to it later.

DOMAIN ONE: DECISION MAKING

01208080	1.0.0	Unratable. No clear reasoning structure for choice to return to school.
01208081	1.5.5	Decision made with exploration of risks involved; criteria are implied.
02106000	1.2.2	Only consideration for choice is what person wants to do!
05110162	1.0.0	Insufficient data to identify a reasoning structure.
01210089	1.5.7	Criteria implied in her processing of past experiences to determine whether this was what she still wanted to do.

DOMAIN TWO: ROLE OF LEARNER

Protocol #	Expert Rating	Rationale
03109001	2.3.2	Factual information preferred because it is practical and useful in the work force.
03107059	2.4.4	Expands possibilities on how to use information. Can get overview of reality to give one a handle on large and complex things.
02207053	2.2.1	Facts easier to learn (in this case memorize).
01108106	2.5.1	For now, facts help put "meat on the skeleton" - help evaluate one's perspective. Best type of learning in the present context is implied.
05107218	2.3.1	Internalizing ideas and concepts equals understanding.
05104066	2.2.1	Easiest to obtain answers because they are concrete and can be seen.
05204078	2.2.1	Easier to organize implies easiest way to obtain answers.
03208033	2.4.1	To develop a way of thinking and looking at the world. More than just understanding of Position Three.
02106000	2.0.0	Unratable. Does not address the issue; no reasoning structure.
05110162	2.4.1	How to think with information at hand. Lack of concern over right answers is what distinguishes this from a Three version of understanding.
02105067	2.3.1	Prefers (partially because it is easier) to think about ideas rather than to memorize facts. Distinguished from Two by lack of concern about getting the right answers directly.

DOMAIN TWO: ROLE OF LEARNER

02106075	2.4.2	To think and evaluate for oneself.
05210024	2.4.4	To look at generating different possibilities, perspectives, and aspects.
01109137	2.4.4	Chooses both in order to expand possibilities for use of information: facts for arguments and ideas to develop arguments on basis of earlier data. Can argue with books.
05107001	2.3.2	Enhancement of interpersonal skills is a practical outcome of learning ideas and concepts.

DOMAIN THREE: ROLE OF INSTRUCTO

Protocol #	Expert Rating	Rationale
02206012	3.2.3	Good sense of humor makes class interesting, fun, and keeps students' attention.
02206170	3.3.4	Preferred method is organized - step-by-step, logical lectures.
05210024	3.5.1	Focus is on applying knowledge in a context - to work with basic foundation to generate related ideas beyond the original concept. Done in an evaluative manner not characteristic of a Four.
02205105	3.3.2	Preferred method is to let students "try it out," i.e., write the paper, lab. Authority still in charge, but main emphasis is on hands-on experience.
02205027	3.2.1 3.2.2 3.2.3 3.2.4	Uses all four structures - teacher provides clear facts, clarifies, entertains, and conducts class in a way that is good for students. Some Three in caring about students, but modal thinking is Two.
02106073	3.3.1	Rapport between student and instructor is central issue - if it is relaxed, student can learn better.
03109001	3.3.2	To engage in concrete activities and then to review what was learned.
02106075	3.4.4	To teach students how to think and analyze what they think.
03207058	3.5.2	Teachers, experts, and students can share perspectives, evaluate and learn from each other.

DOMAIN THREE: ROLE OF INSTRUCTOR

05108055	3.2.1	The reasoning structure described is one of teacher telling students clear facts. Response implies a realization that this does not allow students to establish own beliefs, but does not articulate this clearly enough to suggest this is modal reasoning.
03107059	3.4.4	Teaching students how to think, search for implications, etc.
03206096	3.5.1	Focus is on applying learning in a context. Allows for critical and constructive thinking. This is a good example of a Five who writes in phrases (last two sections) but essence of thinking comes through.
01108143	3.4.4	Learning equals questioning and exchange of ideas. Emphasis on enthusiasm is misleading until put in perspective of this person's definition of learning.
02107137	3.4.4	To challenge student to develop ideas, own initiative.
01109137	3.5.3	Teacher and student can both contribute knowledge whether in various approaches described here or "traveling through the dark together"!

DOMAIN FOUR: ROLE OF PEERS

Protocol#	Expert Rating	Rationale
05207013	4.2.1	Class members ask questions to help other students, remind professor of important points.
03208033	4.5.2	Implies application of knowledge in a context - discussion and processing of field experiences helps integrate and process. Evaluative nature of processing implied.
03107059	4.4.1	Focus is on excitement of hearing others' ideas, challenging, and being challenged. The latter could be Five, but does not seem to be the issue of the response.
02206012	4.2.0	Interaction between students helps instructor know where the problems are so instructor can help. Relationship with instructor is discussed only in terms of helping students ask questions.
03209015	4.4.1	To gain insight into different philosophies and frames of reference; students share information -implies gaining diverse perspectives. Not enough evaluation of perspectives to be a Five.
05104066	4.2.1 4.2.2	Peers ask questions you don't want to ask; talking makes class less boring.
01208081	4.4.1	Two reasoning structures are evident here. One is preference for listening to lectures, other is that it is important to have healthy, constructive arguments. A Two who wants information from the instructor would not acknowledge the latter.
01210089	4.5.1	Method draws on expertise of peers (providing they have it).
02205105	4.3.1	Student talking keeps class interesting so you can pay attention and subsequently learn a lot.

DOMAIN FOUR: ROLE OF PEERS

02106075	4.3.4	Student talk can help internalize information, analyze the why's behind something. Focuses on thinking through information rather than the Four notion of how to think.
05210024	4.4.1	Can gain additional insights, issues from peers.
01109137	4.5.0	Which method is best is based on context. Lecture best for collection of facts, participation for concept development.
05107218	4.0.0	No reasoning structure, does not address the issue.
01108106	4.3.2	Students can and should ask questions to better understand, but not in a way that deters from the teacher's presentation of knowledge. Much of this response sounds like Two, but it implies that under certain circumstances there is more to student talking than a Two perspective.
02207173	4.2.1 4.2.5 4.2.0	Ask questions when don't understand. Peers can help each other by sharing what they learned in class. Student talk lets the teacher know what the students do or do not know.

DOMAIN FIVE: EVALUATION

Protocol #	Expert Rating	Rationale
02105067	5.2.2	Evaluation based on knowledge of material. This is obtained through exams - written or oral.
03107059	5.4.1	Evaluation is a mutual process - both what was learned, what was done.
01108106	5.5.1	Focus of evaluation is on measuring competence in a given subject matter.
05104066	5.2.5	Focus is on getting opportunity to show what one knows - can do it orally if one tends to freeze up on tests.
01108143	5.4.3	Evaluation based on evidence of pursuit of ideas and accomplishment of student goals implies thinking for oneself.
02207053	5.3.2	Focus is mainly on demonstrated learning, but a portion should be based on effort. A Two would not include that portion.
05107228	5.0.0	Insufficient data to identify a reasoning structure.
01208081	5.5.1	Variations in second section are in ways to accurately measure competence; Last section sounds like 5.2.5 but in the context of the whole response reflects that one way was inaccurate.
05208044	5.3.1	Important aspect is understanding instead of memorization. Grading is no longer clear - needs to take into account the class structure.
02205105	5.3.2	Reflects the Three concern with fairness related to individual differences in learning capacity.
01109137	5.5.1	Method of evaluation should match the class so as to accurately assess competence.

DOMAIN FIVE: EVALUATION

03207058	5.5.1 5.5.2	To focus on accuracy of assessment. Exchange of feedback enhances student growth.
05107218	5.3.1	To test what students really understand, with a focus on practicality of the information.
02206170	5.2.2	Evaluation is based on whether the material is mastered; business world needs guarantee that students have the proper knowledge. The tone of this response is on assessing whether students know rather than on accurate assessment of competence.
02107137	5.4.0	Four recognition that you must play the game to do well. Implies there could be other ways but this one is okay.

263

DOMAIN SIX: NATURE OF TRUTH, KNOWLEDGE, REALITY

Protocol#	Expert Rating	Rationale
01108106	6.5.2	Knowledge uncertain. Explanations can be reasonable with sufficient reliable justification and use of common sense. Judge the evidence.
02107167	6.2.2	Knowledge is certain. Can accept explanation if details are there - perhaps not if information isn't complete.
05210024	6.5.2	Knowledge uncertain. "Believe" on the basis of preponderance of evidence.
02106000	6.2.1	Knowledge is certain and student can find truth in library when professor is wrong.
03207058	6.3.1	Two categories of knowledge. Look up that which is known, accept tentative answers in areas not yet known.
03206096	6.4.1	Everyone has their perspective - use your own to decide what to believe.
05107001	6.5.2	Knowledge is uncertain (room for disagreement - can only know in your own mind) - judgment is based on evidence.
03208033	6.4.1	Individuals can have different interpretations based on different perspectives, experiences, learnings.
05208044	6.3.1	Two categories of knowledge. Unknown represented by inconclusive evidence.
05110162	6.3.3	Two categories of knowledge. New information coming continually allows for changing conclusions.
02206012	6.4.4	Both could be possible. Keep both to stay open-minded.

DOMAIN SIX: NATURE OF TRUTH, KNOWLEDGE, REALITY

03109001	6.4.2	People have differences of opinion on everything. Just gather information and use your own feeling to decide.
02205105	6.4.1	Both could be right. Decide which one seems more probable.
05108055	6.3.3	Two categories of knowledge. For unknown use what is consistent with your own beliefs until new information is known.
05207013	6.2.1	What is true in one place can be false in another, although truth is certain in either case. The initial section sounds like the One notion of lack of understanding, but the last section acknowledges the issue is not simply lack of understanding.

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